The Journal of
The Madras Geographical Association

Vol. 12 April, 1937 No, 1

Industrial Crops of Kerala

By

Mr. George Kuriyan, B.Sc., (Lond.)

OFFICE OF THE REGISTRAR OF BOOKS
13 AUG 1937
MADRAS

(*Continued from Vol. II, No. 4, page 290.*)

Rubber. Although rubber can be obtained from many plants, the product of Hevea Brasiliensis only is of much commercial importance. As a native of the Amazon lowlands, this tree needs continuous humidity of air and soil (80″ of rain, or even more), high temperature throughout the year and an absence of wind. A spell of dry weather prevents the flow of latex (which when coagulated becomes rubber) as the tree does not then contain sufficient water pressure to force it out when tapped; but in spite of its love of moisture, the tree does not do well on swampy ground as this causes the latex to become too thin.

		Number of workers.		
Region	Acreage.	Male.	Female .	Total.
Malabar.	13,000	2,370	381	2,751
Travancore.	95,832	6,248	1,028	7,276
Cochin.	10,000	1,242	339	1,581
Total	118,832	9,860	1,748	11,608

Judged by the total acreage, it is found that rubber is second only to coconut in acreage. The total acreage of rubber is a rough approximation as no accurate statistics are available for either Cochin or Malabar. On a glance at the above statistics, it is quite clear that Travancore is by far the most important region where rubber is cultivated in Kerala; nearly 80% of the total rubber cultivation of Kerala is in Travancore. In Travancore, the four taluqs of Pathanamthittai (11,780), Pathanapuram (8,180), Changanacherry (24,873), and Meenachil (11,799) are the most impor-

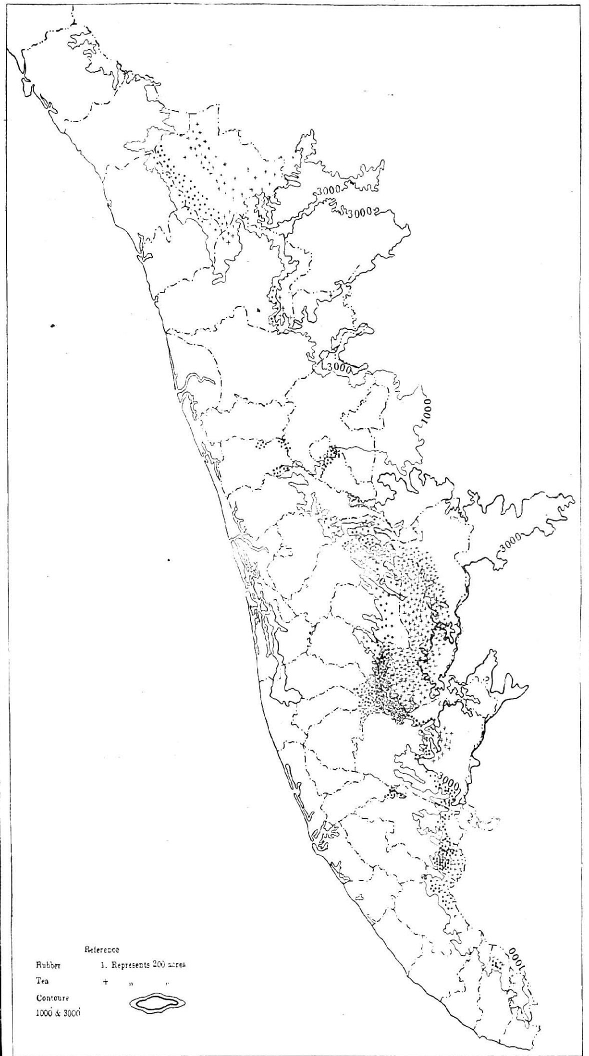
tant rubber producing areas; these together account for nearly 60% of the total acreage in Travancore. About 45,000 acres of rubber in Travancore is European owned. The rubber plantations were originally started by the Europeans and the Indians started these plantations at a much later date. It is also noteworthy that the European estates have not been extending during the last decade, while the Indian-owned estates have increased by nearly 100% during the same period.

The distribution of rubber, as seen from the map is peculiar. As coconut was typically a crop of the coastal regions, so likewise, rubber is typically a crop of the foot-hills. It is noteworthy that the contour line of 1000′ normally limits the cultivation of rubber; beyond an elevation of 2000′ it is never grown. Rubber is therefore a crop of the lower slopes. The rainfall of the rubber growing regions, varies from 80″ to 120″. It may be because the rainfall of the higher slopes is too great that rubber is not grown there, or it may be because these upper reaches are too windy for rubber. The latter is perhaps a more important cause than the former in determining the upper limits of rubber cultivation.

Judged by the number of persons employed, one notices a marked difference between the tea and rubber plantations; the rubber plantations with a total acreage of 118,832 employ only 11608 labourers while the tea plantations employ 72,393 persons or nearly six and a half times the numbers engaged in the rubber plantations, although the latter has a greater acreage than tea. This is because of the tremendous set-back the rubber industry has had during the last decade. When the census was taken, most of the estates were just run on a maintenance basis and practically all the labour was disbanded. During the last few months, the rubber industry has been showing signs of a revival and several new estates have been registered, but how far this will continue is a matter which time alone can judge.

Tea. Judged by acreage, tea is the 3rd important crop of the region.

Climatic and edaphic factors. Tea and coffee require a rich, light, friable soil with abundance of humus in or on top of it; they both require frequent heavy rains but a well-drained subsoil, and derive a great benefit from shade. A favourable site would therefore be a clearing in a forest on the side of a hill exposed to monsoon rains, so long as the slope was not steep enough to cause any slipping and both demand a great deal of manual labour which must be cheap and not clumsy.



3000
3000
3000
1000
3000
3000
1000
Reference
Rubber
1. Represents 200 acres
Tea
+ " "
Contours
1000' & 3000'

Tea is a shrub and its value is in the leaf; as the leaves are best when they are young, the crop is usually picked in spring. The plant is so essentially a sub-tropical plant—one of the hardiest of such plants—and therefore has a wide climatic range being even able to stand severe frost, but it gives the best yield when the temperature is high all the year round and where the rainy season is long and uninterrupted. For quality and quantity, the plant does best in warm sub-tropical climate rendered more or less continuously damp by an evenly distributed rainfall of not less than 60″ (there should be no month with a really pronounced drought) and the optimum temperature is with a daily range between 75° and 85°F. Leafage seems to depend mainly on the presence in the soil of organic matter and nitrogen, and quality on that of phosphoric acid and potash; and as rotation is not possible with a permanent crop such as tea, these have to be supplied artificially. Manuring is applied heavily direct to the roots. Weeding and hoeing have to be frequent and nitrogenous green crops have to be grown in between the rows of tea plants immediately after and before the rains. Left to itself the plant will grow to the height of an ordinary tree, but it is kept by pruning at a height of 2 to 3′ both to force more of tender foliage and to facilitate easy plucking. The picking commences in the third year and the annual out-turn per acre varies from 2 to 4 maunds according to the age of plantation. Picking has to be carried on by manual labour "particularly by women, who, with quick eye and deft fingers, rapidly choose and pluck the leaves, right and left hand operating simultaneously." The leaves are then taken with the minimum delay to the factory where they are withered, rolled, fermented, dried, sorted and then packed.

Because tea is a crop which demands copious rains and complete drainage (in order that the water may not be in contact with the roots for a long time) only hill slopes are suitable for the cultivation of tea. In Kerala the hill slopes of the Western Ghats are being utilised for the cultivation of tea and the distribution of the crop is as shown below:—

		Numbers employed		
	Acreage	Men	Women	Total
Malabar	12,946	4,207	2,373	6,580
Travancore	75,615	36,600	27,606	64,206
Cochin	577	1,067	540	1,607
Total	89,138	41,874	30,519	72,393

These statistics clearly reveal that Travancore is by far the most important region of Kerala where tea is cultivated, nearly 85% of the Kerala cultivation of tea being confined to Travancore. About 70,000 acres of the 75,615 acres of tea cultivated in Travancore is European-owned; and this is in marked contrast with the features of the rubber industry. There are two large combines, the Kannan Devan Hills Produce Company, Limited with its headquarters at Munnar and the Travancore Tea Estates, Limited with its headquarters in Peermade. It is only in the near past that Indians have taken to the plantation of Tea; and this explains the very low percentage of Indian-owned tea estates.

In Kerala tea is grown only along the slopes of the Western Ghats; and the elevation at which it is found varies very considerably. 50% of the tea production of Travancore is high grown (i.e., between 4000′ to 6000′) mainly in the taluk of Devicolam (33,518 acres) whose market is London. The major portion of the tea grown outside Devicolam taluq in Travancore is medium grown (2500′ to 4000′). Most of it is in the Peermade taluq (28,792 acres). Small outliers are, however, found in Tovala (387 acres), Kalkulam (809 acres), Nedumangad (2,749 acres,) Pathanapuram (2,967 acres), Shencottah (1,050 acres), Pathanamthitta (3,165 acres), Changanacherry (1,280 acres, near Kanjirappally), Meenachil (1,223 acres) and Muvattupuzha (691 acres). In Malabar, Wyanad and Ernad are the two taluqs where most of the tea is grown. (Taluq figures are not available). The tea is mostly medium grown.

In the tea-growing regions of Kerala the rainfall is about 150″ per annum; it is rarely less than 100″ per annum (except in Thovala). A map of the isohyets of Kerala shows clearly the exact relationship between rainfall and tea cultivation. (The westerly bend of tea cultivation in Kanjirappally is easily correlatable with the bend of the isohyets towards the west.)

The statistics of labour employed in the tea estates, shows clearly the preponderance of the female element. Nearly 42% of the labour employed is female labour and this forms an interesting contrast to the rubber plantations, where 83% of the labourers are men. Female labour is essential for the plucking of leaves in the industry, while in the rubber plantations men are always employed for the collection of latex. In the former case, the labourer has to make a choice of the leaves which necessarily demands a certain amount of artistic care, there must again be available a dexterity of the fingers and the labourer has to be patient; in other words,

the essential characteristics required are care, skill with the fingers and patience—three things in which the woman is superior to the man. This clearly explains the predominance of the female element in the labour of the tea plantations. No such dexterity or care is required in the collection of the latex in the rubber estates and hence one notices that the male element of labour predominates as usual.

Pepper. The role of pepper in the history of India is too well known to be mentioned here elaborately. It has been established beyond any shadow of doubt that this commodity played a very important part in the trade of the Roman Empire with the East. (vide Warmington). Kerala practically enjoys a monopoly in the production of pepper ; and it has been said " the well-being of the people of Kerala may well be described as pickled in pepper for 2,000 years."*

The total area under pepper is not accurately known ; it has baffled all the statisticians who have attempted its compilation ; and there are no pepper estates at all. On the contrary every holding has a few of these creepers and it is always grown with something else and never as a single crop. To compile statistics regarding the distribution of such a crop and its total acreage becomes a matter of difficulty. Hardly any accuracy can be claimed about it. On a rough approximation, the acreage of the crop is as follows :—

Malabar	88,164	acres.
Cochin	2,380	,,
Travancore	1,07,500	,,
Total	1,98,044	,,

Travancore alone produces more than one-third the total world production and the quality of the pepper produced in Travancore is the best. Alleppey pepper fetches the highest price in foreign markets. India exports about 68,000 cwts. of pepper annually. (Travancore 43,800 cwts.). The yield of pepper on an average is about 250 lbs. per acre. There is a very extensive home market in India for pepper which explains the low proportion of the export to production.

* Vide the Economic Enquiry Committee Report of Travancore—a statement made by Mr. M. E. Watts, the Dewan of Travancore.

Cardamoms. In Travancore alone, there is a reserve of 48,000 acres for cardamoms of which 30,000 acres are actually cultivated. No statistics are available regarding, either Cochin or British Malabar.

Coffee. Judged by the total area under the crop and the number of persons employed in its cultivation, coffee is the least important of the industrial crops grown in Kerala.

Coffee is a shrub, but considerably larger than tea reaching a height of 15 to 20 feet, the plant has not as wide a range as tea, being very sensitive to cold and to hot dry winds, though it needs a dry season at harvest time. The plant must be protected from heavy winds and it also requires shade from the sun, an optimum mean annual temperature is 68° to 70°F. The most perfectly ripened fruit comes from hot and dry areas where the berries can be allowed to mature until they drop off. (e.g., Mocha coffee and the Bolivian coffee).

The distribution of the crop in Kerala and the number of persons employed in its cultivation is as shown below :—

	Area		Number of persons employed
Malabar	7,549	acres	2,581
Travancore	907	,,	258
Cochin *	1,939	,,	510
Total	10,395	,,	3,349

(* The census of Cochin states that the total acreage under coffee in Cochin is 6,000 acres while the Agricultural Statistics Vol. 2, 1932—33 states that the total acreage is only 1915. It is very difficult to reconcile these figures. The Agricultural Statistics of India Vol. 2, 1933—34 states that the total area under coffee in Cochin is 1,939 acres. I have therefore taken the all-India compilation as the more correct one.)

Although a large part of the High Ranges of Travancore satisfy the climatic requirements of the plant, it is surprising that the total area under Coffee in Travancore is very low. Historically speaking, coffee estates were started in Travancore earlier than tea estates, but the attempt was a failure. Competition with Coorg was far too keen and many of the planters suffered considerable losses due to failure of the crops also. It was then that the tea

estates were started in Travancore. The initial profits in the tea industry were so attractive that the planters concentrated themselves on tea production only. It must also be mentioned that coffee plantations demand much more care than tea estates, which fact also must have contributed to the decay of coffee estates in Travancore in no small measure.

The coffee industry has been suffering greatly by the trade depression. The demand for Indian consumption appears to be steadily increasing, thereby making the Indian producer independent of the outside markets to a certain extent. There were indications that owing to the great depression in the rubber industry there will be a very large increase in the planting of "Robusta Coffee" which has been found in places where rubber is now produced. As has already been pointed out, in the near past, rubber industry has had a considerable revival and it looks improbable that robusta coffee may replace rubber at least in the near future. If however it does so, then the quantity produced in Kerala will be very much greater than at present, and probably Travancore will be the largest contributor to this production.

In this paper I have tried to bring forward some facts regarding the distribution of some special crops grown in Kerala, which have an industrial aspect about them. The variety of these crops gives this region an importance far in excess of its size.

A Tour round Cape Comorin in three weeks*

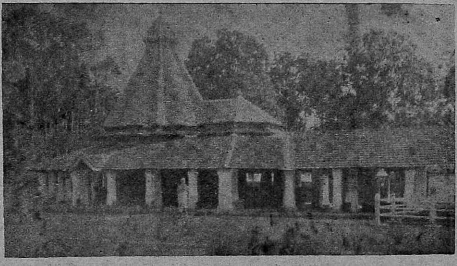
By

Mr. M. Narayanaswami.

Taking advantage of the cheap circular ticket issued by the S. I. Ry. from *Podanur* to *Podanur*, available for 3 weeks, a party of four of us decided to visit the important places in South India. A tour programme was duly drawn up, and it was adhered to in its entirety.

DAY 1.

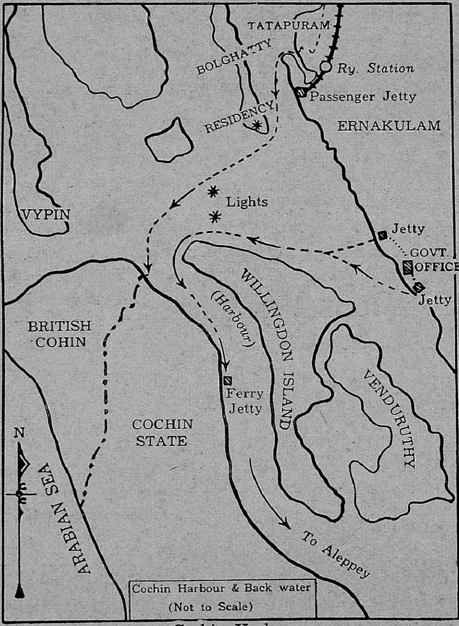
Starting from *Coimbatore* by the midnight train, we crossed the Palghat Gap, and changed for the Cochin State Railway at *Shoranur*. This section has now been converted into broad gauge, because of the Cochin harbour scheme which is now on its last stage of completion; and the volume of traffic in passenger and in commodities has increased of late. At the early hours of the morning, the train crosses over the Bharatha Puzha, which is the boundary between the British and Cochin territory. We pass along the border of some hills very close to Wadakkancherry. As it is now the month of December, the weather is cool and pleasant, unlike the months of April and May, when it is hot in this region even in the early hours of the morning. At *Chalakkudi*, another station on this section, we see the forest tramway which brings timber from the hills beyond. There are timber depots at this



Kaladi—Ambal Sannadhi.

* A paper read before the Coimbatore Branch of the Association.

Landing jetty at Ernakulam.

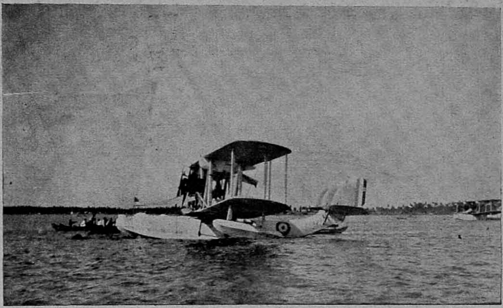


Cochin Harbour.

station, belonging both to the Government and to private individuals and companies.

We reach Angamalai or Kaladi Road, where we get into the bus to reach *Kaladi.* The small temple on the banks of the River Alwaye, with its beautiful natural surroundings is surely conducive to religious meditation.

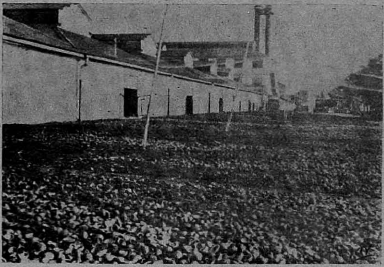
Leaving this place by noon, we reach *Ernakulam* in time, to have an evening stroll on the shore. The climate is warm in spite of the month. At nightfall, it is a glorious sight to see the opposite shore of *Cochin,* with the country and other craft with the numerous lights shining in the waters, the steamers anchored in the harbour, and the tall lights on the roadstead glimmering against the starlit sky. Surely Cochin can be styled the " Venice of the East ". To cross over to Cochin from Ernakulam, one has to take



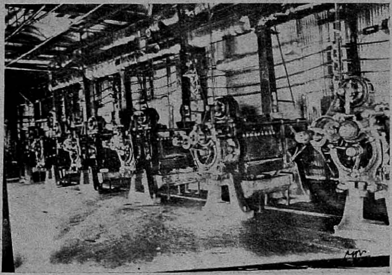
Sea-planes off Cochin.

a ferry boat, which goes very near to the harbour wall and rounds it to reach the town jetty. Cochin itself is divided into two sections, British Cochin and State Cochin. On the foreshore at the entrance of the backwaters can be seen numerous fishing nets, which are of a type peculiar to this part of the country.

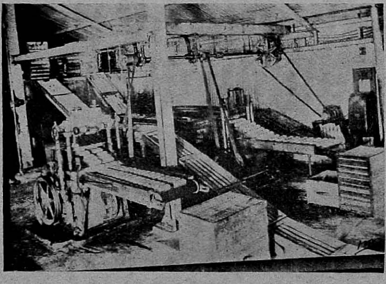
2. At Ernakulam we visit the famous oil mills of Tata Co., and their soap-making departments. Taking a comfortable cabin on the last night boat, we leave for Alleppy along the backwaters of Cochin. Our sleep is disturbed at the border-line of Cochin and



Copra yard—Courtesy of Tata Co., Bombay.



Oil Expellers: Tata Oil Co.—Courtesy of Tata Co., Bombay.

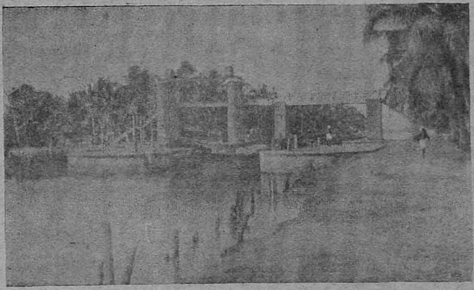


Toilet Soap section—Courtesy of Tata Co., Bombay.

Travancore, where our goods are examined by the Customs authorities. The slow-moving boat (speed 5 to 8 miles per hour) reaches *Alleppy* at the early hours of the morning.

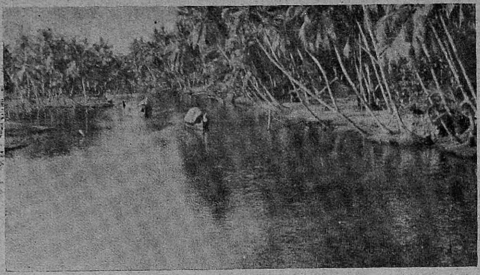
Backwater canal—Cochin.

3. We can see at Alleppy the numerous huge godowns belonging to various companies lining the canal, which runs through the city. At about midday we start off by road to Quilon. The roads are maintained in good condition, and the motorist finds little trouble on the way. Our bus crosses over the Thottapalli



Thottapalli lock between Alleppy and Quilon.

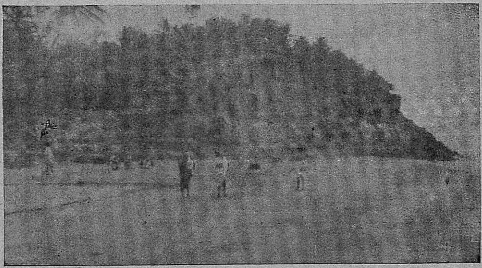
Canal by a ferry, maintained for the purpose. The lock on this part of the canal is shown in the photograph. One notable feature on this part of the journey is the rich cocoanut vegetation one meets with on his way, and the numerous backwater canals, which carry a good deal of the goods traffic. We cross a number of schools on the way. It is no wonder that Travancore is foremost in fighting out illiteracy. We appreciate also the precaution taken by the



A scene on the backwater canal between Alleppy and Quilon.

Government in putting up warning sign boards over school zones, where the speed is restricted.

4. Reaching *Quilon* in time to catch the Trivandrum Express, we reach *Varkala* by nightfall. In the morning we visit the springs by the sea-shore. These springs are reputed to be a cure for skin diseases. But being very close to the sea-shore, they are not reached during the monsoon months, when it is said that the sea rises close to the tall cliffs. The road leading to the station is of a



Red cliffs—Varkala.

down gradient. The surface of this part of the country is unlike the plain, there being many ups and downs. The Railway runs through an elevated ground. One of the backwater canals runs through a tunnel to a length of a mile or a mile and half. The photograph shows the tunnel entrance on one side. The path leading from the main road to the canal winds down to nearly 1000 ft. below

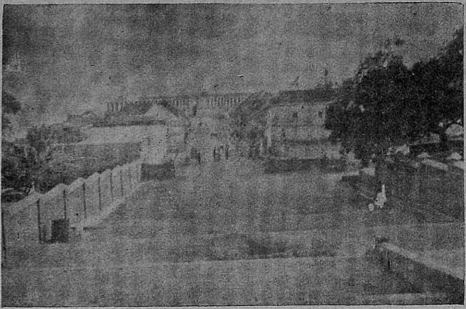
the road level. There are numerous springs here, and arrangements are made to bathe in them.

Backwater canal tunnel 1000 ft. below the road level—Varkala.

5 & 6. From Varkala we reach *Trivandrum*, by evening. Our co-travellers point out to us where Old Trivandrum station was and also the remnants of the railway road leading to it. A good deal of money has been utilised to take the line directly into the capital. A good feature is that the roads cross over the railway line, thus avoiding level crossings and their attendant inconveniences. Trivandrum Central has been built in modern style, befitting the headquarters of a premier state. There is a bus service throughout the city, and for a cheap fare we can ride in comfort over long distances. The roads are well laid. There is a protected water supply, the equipment here being of the up-to-date type. An aerodrome has recently been constructed, to provide a landing ground for the air service, which has recently linked Travancore with Bombay.

7. The road to the Cape winds its way along the paddy fields. The country is a plain one, with numerous hills on the left of our road. We can see some of these at close quarters, and there are remnants of walls of some Old Fort in ruins. *Nagarkoil* is an important centre in this State. There are a number of Government

institutions here. Several missions have established centres in and about this place. We reach *Suchindram.* The huge Gopuram with its shadow cast in the tank close by, and the huge car standing in front of the temple tells us of the influence of the East, where alone such types of temples are common. The corridors of this temple are long and richly carved. Some of the figures show signs of mutilation by invaders. Our motor car is again on the road to the Cape. The nearness to the sea is inferred by the sandy soil and the nature of the shrubs that grow therein. There is a row of



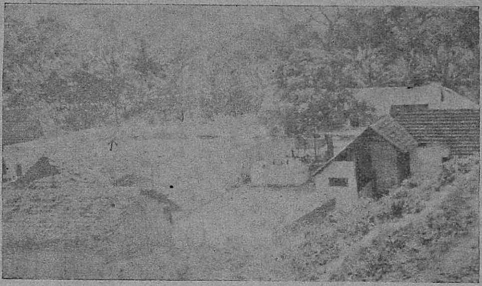
Cape Comorin (Temple at farthest end).

houses at the *Cape,* with the *Temple of Kanyakumari,* at the far extremity. Behind the temple is the bathing ghat—the meeting place of three oceans. Standing on the edge of the waters, one cannot but admire the beauty of the spot. In front of you, you have the vast expanse of the Indian Ocean. Here is the place where one could see the big orb of the Sun emerging from the waters and dipping into the waters. Especially on a full moon day, it is a glorious sight to see the disc of the moon rising out of the waters as the sun dips at the other end.

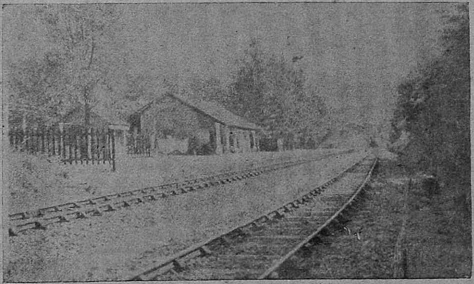
8 & 9. Leaving the Cape, we are in *Trivandrum,* and after a visit to the temple and the famous museum and gardens, we take the early morning train to Aryankavu.

10. As far as Avaniswaram, the line runs along a low plateau, and then crosses over a gap in the range of long mountains, beginning from Avaniswaram and ending at Shencottah on the other side. Unlike the Palghat gap, this gap is narrow and the train actually climbs to a good height before it descends on to the other

Anantapadmanabhaswami Temple—Trivandrum.



Aryankavu: Temple of Sastha (God of the Woods).



Aryankavu Railway Station.

side. *Punalur* at one end of the section is famous for its paper mills. Another station is rightly called the "Thenmalai." **Aryankavu** is situated right in the midst of a dense forest region. There is a temple of Sastha "God of the woods" here. A festival in his honour is held at this part of the year. During the period of the monsoon the humidity along this section is very high, the temperature very low and the moisture-laden clouds literally shot through the gap, into the other side. We can observe in this section, tall cliffs and deep ravines on either side, with the clouds drifting along over the tree tops. Because of its situation, the station is highly malarial.

11. We cross a number of tunnels and pass over numerous curves on our descent into the plains. At *Tenkasi,* it is cloudy and threatening to rain. Early in the morning we reach *the Courtallam*

A curve on the hill section near Aryankavu.

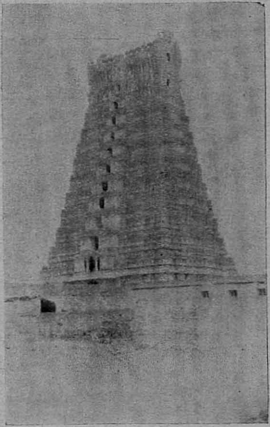
Courtallam Falls.

falls. Protection is provided to bathers by strong railings. The height of the falls is about 200 ft. Courtallam is a favourite resort for health in summer for the people of South India. Coming back to Tenkasi, we entrain for Sankaranayanarkoil. This is also a temple city, all the streets being round the temple. A huge tank provides the water for bathing purposes and is situated close to

Sankaranayanar Koil.

the temple. The temples in these parts are almost designed on the same plan. The sculptural designs are also similar. The distance from the entrance to the *mulasthanam* (the place where the deity is) is about a furlong nearly.

12. From here to *Srivilliputhur* takes us through a country, where agriculturists depend upon waters stored in extensive tanks. They complain that the failure of the monsoon successively for the past few years has made their lot difficult. The road leading from the station to the main town is far from satisfactory. The soil being



Gopuram of Sri Andal Koil— Srivilliputtur.

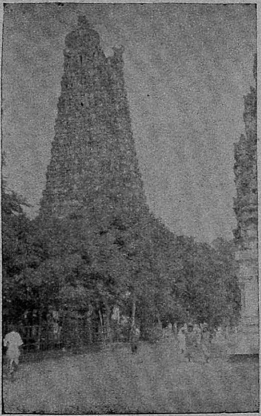
clayey, one can imagine the lot of the pedestrians as well as of the animals plying in this road during the rains. The imposing gopuram of the Andal temple can be seen from a great distance. This town is another temple city. It is said that water is scarce

in these parts in the dry season. But now, the tank adjacent to the town is full of water, because of recent rains.

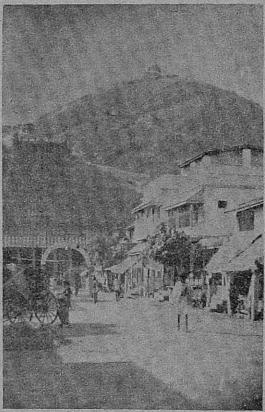
13. Abandoning Papanasam and Ambasamudram from our programme, owing to heavy rains and consequent rise in Thambrabarani, we go straight to *Trichendur*, passing through Tinnevelly. This railway takes nearly five hours to complete a journey of 38 miles. Trichendur Shore temple is well worth a visit. At night we had an experience of the N. E. Monsoon.

14. On our return journey we took the bus route and followed the river Thambrabarani. We had to ford a stream over a causeway. At *Srivaikuntam* we spend a few hours in going through the bridge and seeing the anicut there. This bridge leads to Tuticorin. Passing Alwar Thirunagari and Palamcottah, we reach *Tinnevelly* at 10 A.M. Tinnevelly is an important centre of road communication, a number of bus services radiating from here connecting even distant towns, like Madura, Nagarkoil and Trivandrum.

15-17. By train we reach Madura, the City of Festivals, passing through the important cotton centres Koilpatti, Sathur, etc.



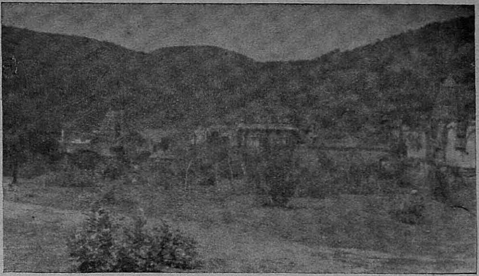
Madura—Gopuram of Sri Minakshi Temple.



Tirupparankunram : Temple view.

It is superfluous to speak of Madura Temple, Tirumalai Naik's palace, Vandiyur Mariamman Tank and the hill temple at Tirup-

parankunram. But a tourist must visit the *Alagar Koil* (a very aged one by its appearance) situated at the foot of the Alagar hills. The background of the temple is the low-lying hills. There are a number of springs on the hills. The country between the hills and the town of Madura is irrigated by a winding canal which is now full. The river Vaigai is the source of water supply for irrigation purposes, its supply being augmented by the Periyar project.



Alagar Koil at the foot of Alagar Hills.

18 & 19. From Madura, we reach Trichinopoly and then Erode. After a trip to Bhavani, we complete our tour reaching Coimbatore after an interval of 19 days.

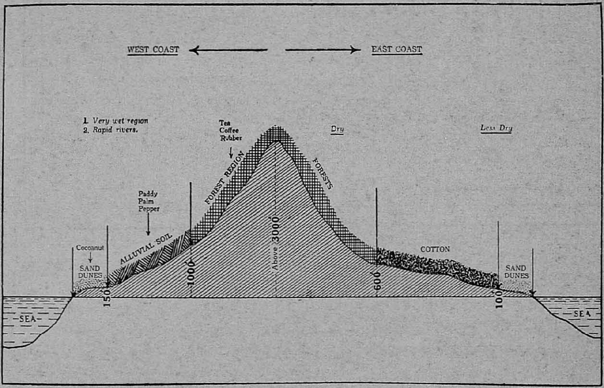
CONCLUSION

A tour like this takes us through two distinct types of regions. One is the narrow strip on the West Coast and the other, the plains on the East Coast.

The narrow strip on the west coast is of 50 miles from the mountain to the sea at its broadest part. This region has its rainfall during the S. W. monsoon, the amounts ranging from 100-200". The rivers are short and rapid. They are stopped by the sandy tract close to the sea thus giving rise to numerous lagoons, which are peculiar to this part of the country. The mountain slopes are suited for coffee, tea, and rubber plantations. The plain strip is filled with numerous paddy-fields lying in terraces, so that the rain waters running down from one field to another can be profitably used to the maximum extent. After the rains, a visitor through the States of Cochin and Travancore is greeted with the sight of a long stretch of green paddy-fields, the plants waving in the soft

breeze, while he can hear the music of the waters flowing down from one field to another. The forest region yields a rich variety of timber. Bamboo thickets are numerous on the hill slopes. The sandy tract by the sea and the backwaters has thick cocoanut plantations. Hence the cocoanut industry is one of the mainstays of the people. Fishing is a common occupation along the coast. The chief means of communication are the road and the rail; but a major portion of the trade is carried on by the country craft along the long stretches of backwaters which are interlinked by the numerous canals. All the foreign trade at the present day passes through Cochin whose harbour has recently been improved. Till now, Alleppy was the important outlet for the foreign trade of Travancore.

The east of Thenmalai Gap is the long stretch of the plains of Tinnevelly and Ramnad Districts. This portion is dependent on the N. E. monsoon for its rains. Hence it is a comparatively dry area, the rainfall being scarce. The rivers are long and slow. The want of rains in these regions accounts for the number of projects

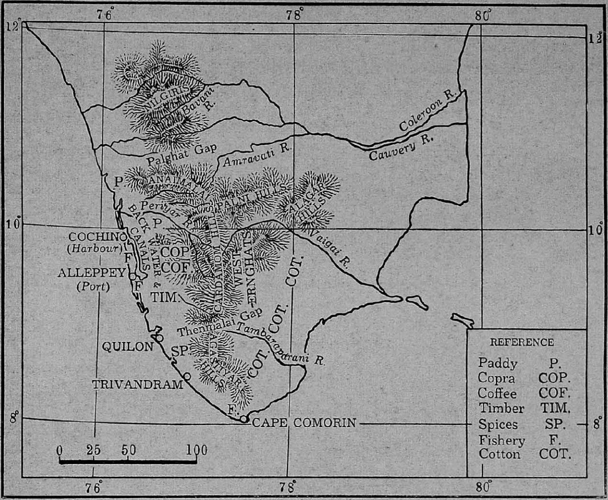


Diagrammatic section of East and West Coast and Hills between.

undertaken to store the waters and to distribute them in the parched up lands. The nature of the soil and the dry climates are responsible for the growth of cotton in these two districts. The

means of communication are the road and the rail. Tuticorin is the port nearest to Colombo, and it is famous for its pearl fishery.

At the end of the tour one cannot but wonder at the two pictures of Nature on the two coastal regions, with the diversities peculiar to them.



A Note on Huntington's Theory regarding the Influence of Climate

By

Mr. S. Muthukrishna Das, B.A. Hons. (Lond.)

It is a fit subject for discussion whether climate is of geographical importance, apart altogether from its influence on vegetation. For purposes of this discussion, we may speak of the very obvious divisions of climatic conditions, namely the tropical and the temperate, instead of going into the various divisions of the tropical into the equatorial, the Sudan type, the monsoon type, etc., and the divisions of the temperate into the mediterranean, the cyclonic, the continental, the China type, and the rest of it. We may have opportunity in this discussion to talk of the various types, but at the outset it is sufficient for our purpose to accept the broad divisions of Tropical and Temperate

In discussing the geographical importance of climate apart from its influence on vegetation, we are naturally restricted to speak of the influence of climate on men and animals. The American school of geographers, headed by Huntington, is of opinion that climate is the only important element which influences the activities of man. According to that school of thought, it is climate which has influenced the industrial activities of mankind, it is climate again which has been the moving factor in the growth and development of world's civilisation, and that in fact it is climate which has influenced the history of the world.

Huntington, in talking of the influence of climate on man and animals, gives the instance of a dog, the faithful friend of man, as seen in all latitudes, and in all types of climates. He gives the contrasting pictures of an Eskimo's shaggy dog in the polar regions, the terriers and alsatians of the temperate climate, and the lowly mongrel of the tropical native. In the same way he draws contrasting pictures of a horse as seen in the different latitudes, and under different climatic conditions. In drawing his conclusions, he also cites the best varieties of the animal observed, and notices the environment in which that particular animal thrives.

To aid his general survey and theorising, he brings in the study of climographs. The relative humidity and average temperature of a particular station is plotted for each of the 12 months in the

year, and a polygon is drawn connecting these points in order. According as the polygon appears on the top left or top right of the graph, the climate is cool and wet, or hot and wet, and so on. The climographs for most of the capital cities of Europe appear at the centre of the graph, and are said to give the best indications for the development of man and animal.

Huntington claims that climographs drawn for a number of cases, ultimately give the optimum conditions for the growth and development of a particular species. And such climographs drawn systematically and experimented upon, consistently show that useful animals like horses, cattle and sheep thrive in temperate latitudes, and that the tropics have the optimum conditions for the growth and development of only pests like the mosquito, and death-dealers like the cobra and the scorpion. In fact, the first thing which attracted the attention of the author when he landed at Marseilles, was the huge size of the cart-horses in that city.

Let us now consider how climate affects the growth and development of man's activities, how it influences the development and decay of civilisations. Here again Huntington draws the characteristic climographs and affirms that the optimum conditions for the healthy development of man is found in that region which has got an average annual temperature of 66·4° F., and not a too humid atmospheric condition, with an annual rainfall of about 25° evenly distributed throughout the year, the prime factor in the condition being intense variability, with no continuous spell of any definite climatic conditions. The keen student will have already noted that only London and S. E. England seem to satisfy these ideal climatic data. But Huntington however votes for the temperate cyclonic climate of North America and North-West Europe, and emphasizes that it is the variability of the day to day climate in these regions which gives the inhabitants such vigour and masterful energy, such 'pep and vim', a character which encourages to dare and to achieve.

It must be admitted that the facts which he puts forward and the evidences he adduces in their favour, though seemingly fantastic, are very true in their foundations. Climate indeed explains the lassitude and the incurable inertia, the indolence and improvidence of the native in the tropics; while it is the chief factor contributing to the vigour and energy of the people of the temperate regions. As we know, the industries of the temperate lands are in dire need of the raw material from the tropics; but the

tropical native cannot be relied upon to grow it and supply the factories 'up in the north'. The white planter from the temperate lands has to go to the tropics himself, and goad the unwilling native, negro or pigmy, Indian or Malay, to do the work for him. A curious exception may apparently be found in the diligent peasants of Java. But it is only an illusion. But for the watchful care of the Dutch overseer, the fabric of Javanese agriculture may tumble down any moment like a house of cards. Unfortunately this leads to the exploitation of the native by the white planter.

Admitting these facts, we may not however concur with the extremists who claim that even physical features are the resultant of climatic environments. It may be agreed regarding the mode of clothing, that the hot and humid climate of the tropics is responsible for the scanty 'clothing' of the natives, while the Eskimo covers himself in skins; whereas the inhabitant of the temperate latitudes 'dresses' in woollen and worsted. Even here it may be argued that 'dress' is only an evolution, and develops or is modified as per the aesthetic taste of the individual concerned. I may here cite the shabby clothes of a Breton peasant, and the embroidered sartorial setting of his cousin in Hungary or Roumania. Certainly we need not agree with the few who assert that the long and pronounced nose of the Nordics in Scandinavia was due to climatic conditions, because they had to breathe hard.

Huntington in one instance makes out a case for the superior culture and development of hill-races in comparison with the plain-dwellers. People living in a hilly country have got energy and 'push' which are irresistible. That explains, he says, why the successive invaders of India from the North-western hills were always victorious over the settled population of the Indo-Gangetic plain. There may be truth in it; for it is common knowledge that in race-courses a horse that has had training in the hills is not allowed to compete in a race, unless it has stayed in the stables of the lowlands for some time before the event.

Admitting then all our previous statements regarding climate and its influence on human development, we cannot fully ascribe the growth and decay of civilisations to climate alone. Climate is only part of the story, the other factors being physical environment, historical events and above all, man himself. Man is such an adaptable being, and it is not very complimentary to say that the human mechanism is but a creature of the environment.

How else can we explain that in one part of the same N. W. Europe, a region having a climate so suitable for human development, there is a race which adopts a *via media* in all its institutions, in language, in religion, in government, etc. I mean the English people, while at the other end of the same region, there is a despot, call it dictator if you please, who challenges the world's peace and freedom. And again, if climate were the sole factor in determining the development of civilisations, how is it that the Red Indian who lived in the same temperate cyclonic zone did not develop any appreciable culture. The Mexican and Incan civilisations of old throve in the tropics, but on the highlands. (The origin of world's civilisation, and its geographical background will form the subject of a separate monograph.)

We may conclude by referring to Huntington's theory of the pulsation of climate, that climate in a given region changes from time to time, that it throbs from century to century. Perhaps that accounts for civilisation migrating to northern latitudes from the south, from Syria and Palestine, Egypt and the Indus, to Greece and Rome, and later to England and N. America, France and Germany. Huntington here puts forward the argument that man, with his increasing knowledge of science, is able to overcome cold, and so civilisation migrates to its northern limit. And here in his own words, comes the human element which controls the climatic factor.

Geography and Education including Extracts from Periodicals

GEOGRAPHY FOR THE NEW AGE

By

J. Fairgrieve, M.A.,

The following are merely notes but it is hoped that they will be suggestive. They have to do with the teaching of geography in school.

1. The Geography for the new age is *not a geography for examinations.* Under the influence of examinations geography in the last twenty years in England has improved in precision but it has also become more of a routine job and less of an adventure; the children are shepherded along the narrow path that leads to the examination gate through which they are gently pushed. The wider objectives of the subject tend to be lost sight of in the narrower.

In the process of teaching for examinations the subject has become too logical in treatment and too economic in outlook and again we are losing sight of the wider objectives. One does not wish of course that the study should take no account of economic conditions nor be illogical, very far from it; but the insistence on a logical scientific attitude only is unsatisfactory for two reasons. In the first place, it is unscientific because it is too logical; it takes account normally only of the physical sciences and very largely omits the biological, and it is profoundly unscientific to omit some of the data of one's problem. A very simple example is that usually given of the formation of a delta; we are told that the material brought down by a river sinks to the bottom at the mouth of a river and forms a delta, but no sinking to the bottom will ever explain how a delta *rises above* the level of the water; the part played by vegetation is omitted from mention. This is a very simple case but the same kind of error is found in much geographical teaching in school.

The work done in geography is unscientific also because very seldom does the study begin with observation; it begins normally with some generalisation; geography should begin at home

because there particular things can be observed and where particular things cannot be so easily observed the beginnings should be more dominantly pictorial than it is because pictures present the raw material more exactly than anything except the realities themselves.

2. And what is the *objective?* As I see it the objective is to help citizens of each land to understand their own problems and those of other folk, not merely to know about them and not merely to understand how these problems arise, though that helps. As far as other people are concerned it means that one must *feel* what these other situations are as well as know about them, and this is not easy; a vast amount of geography must be felt as well as known before it is of any value; this of course cannot be taught as one teaches for an examination; it is indeed doubtful whether many of such things as have to be felt should be mentioned at all in the classroom, but when all is said and done the real test of the value of geography teaching is whether or no these ideas and feelings "naturally arise," to quote a writer of over a century ago.

3. The *content* of the subject is obviously the world in some sense though equally obviously it cannot be all about everything in the world; in what sense it is the world depends on the stage of development of the group of pupils concerned; the world for university students must be something different from the world of the senior school.

4. The *technique* and method of treatment of the subject matter must also be adapted to the mentality and development of pupils of different ages; it has to be remembered, though it is often forgotten, that "idealism" and "systematising" (including the desire for "generalisation") are characteristics of the adolescent and *not* of earlier life; much of school geography loses its effectiveness, its sense of adventure, because it presents generalisations and ideals too early; geography must begin with particular observation not only because it is unscientific to do otherwise but because it is unpsychological. Later in school life, at adolescence, such early work bears fruit. It may be observed here that in the United States the omission of geography to a large extent from the curriculum of the adolescent means that it is omitted just when it is possible to let ideals "naturally arise" when sufficient preparation has been given. In Britain we tend to stultify results by inducing the examination complex.

THE USE OF THE HOME REGION IN TEACHING GEOGRAPHY

The Home Region is the natural starting place for teaching Geography to little children. Observational work gives examples of relief, climate, etc., which serve to introduce Physical Geography while observations of industries, traffic, houses, etc., give an introduction to Human Geography. In later study in the school the Home Region may be studied again, and its different aspects linked into a whole by that connection of facts, which is the chief educative value of Geography teaching. At the same time, when other countries are studied in school, the Home Region gives the starting point, for it gives facts known from observation which can be contrasted and compared with those taught about other lands, and so lead to a realisation of facts beyond actual experience.

Towards the end of the School course, a school journey may apply the same preceedure to another small region of the Home Land, that has been applied to the Home Region, so that the pupil has two points of reference for studying countries further afield.

Later in the life of the pupil the Home Region may be made the subject of a piece of exhaustive research which is put into appropriate form, the maps, diagrams, descriptions, etc., being gathered into a whole to form a thesis. The making of such a thesis is a very excellent piece of education, for it combines observation in field work, with practical work indoors, both to be parts of a coherent whole the organisation of which and its expression is very valuable training.

IMPORTANCE OF IRRIGATION IN INDIAN ECONOMY

An idea of the importance of irrigation to India may be had from the latest statistical information available.

The total irrigated area in British India, according to this information, was in 1934-35, 50,534,000 acres as against 50,508,000 acres in the preceding year. Of this area, 22,404,000 acres were irrigated from Government canals, 3,667,000 acres from private canals, 12,527,000 acres from wells, 6,213,000 acres from tanks, and 5,723,000 acres from other sources of irrigation.

Irrigation is ordinarily resorted to on an extensive scale only in tracts where the rainfall is most precarious. In Lower Burma, Assam, Eastern Bengal and the Malabar Coast (including the Konkan), where the rainfall is ordinarily heavy, the crops hardly need the help of irrigation, unless there is an unusual scarcity of rain. Of the total area irrigated, the Punjab accounted for 29 per cent, the United Provinces 21, Madras 18, Bombay and Bihar and Orissa 10 each, and the other Provinces for the remaining 12 per cent.

The proportion of irrigated to total area sown in each Province was as follows:—Punjab 54, North-West Frontier Province 44, Ajmer-Merwara 38, United Provinces 30, Delhi 29, Madras 28, Bihar and Orissa 21, Bombay 16, Assam 11, Burma 8, Bengal 7, Central Provinces and Berar 4 and Coorg 3.

If the areas sown more than once are taken as separate areas for each crop, the gross area of irrigated crop comes to 54,193,000 acres. Of this area, 84 per cent was under food crops. Of food crop area again, 18,398,000 acres were under rice, 11,212,000 under wheat, 2,622,000 under barley, 1,374,000 under jowar, 988,000 under bajra, 1,016,000 under maize, 1,990,000 under sugarcane, and the remaining 8,165,000 acres under other food crops. Of the irrigated non-food crop area, 3,381,000 acres were occupied by cotton.

Some Specimens of Class Examination Papers in Geography

By

Miss H. T. Scudder

IV Form.

1. Which continent is entirely in the Southern Hemisphere ?

2. Fill in the blanks : The Tropic of——passes through—— and——. The Tropic of——passes through——. The Equator passes through——and to the——of——.

3. Draw a quick map to show the following places : Then for each place give the following facts. The season *now*, if there is rainfall *now* or not, the winds blowing *now*. If you know the temperature also give it. Adelaide, Khartoum, Cook Town, Christchurch, Auckland, Port Elizabeth, Boma, Darwin, Sydney, Algiers.

4. Name the climatic region to which each of the towns in question 3 belong.

5. Make a list of the main causes of temperature. Explain *one* of them.

6. What do you mean by relief rain ? What is another kind of rain ?

7. Draw the diagram showing the revolution of the earth. Name the important dates.

8. Where is the sun shining directly now ? When was it shining directly in Madras ?

9. Draw a map showing the distribution of population in Australia ?

10. Draw a map showing the distribution of population in Africa ?

11. Draw a map showing the relief of New Zealand, naming the important places.

12. Fill in the blanks (you need not copy the sentences if you arrange the words in the correct order.—

Sheep are raised in ....
in New Zealand.
Sheep are raised in ....
in Australia.
Sheep are raised in ....
in Africa.
Gold is found in....................
in Africa.
Gold is found in....................
in Australia.
Sugar is grown in...................
in Australia.
Sugar is grown in...................
in Africa.

13. Write three sentences describing the relief of either Africa or Australia.

14. Write four sentences explaining why Africa is called the dark continent; *or* four sentences explaining why Australia was discovered so late (*Note.* If you chose Africa in the previous question, choose Australia now and the other way round.)

15. What kind of vegetation would you expect to find in Tasmania ? Queensland ? Central Australia ? Central Africa ? Victoria ?

FORM V—GEOGRAPHY (C. GROUP)

Special Region : North America East of the Prairies.

1. COPY THE FOLLOWING, choosing the one of the words inside the brackets which will make the sentence correct.

Old mountains are (high, low,). Young mountains are (high, low). Old rivers are (rapid, shallow, slow). Young rivers are (slow, deep, swift). Young valleys are (deep, broad), Old valleys are (deep, broad). A rising coast-line is (regular, irregular). A sinking coast-line is (regular, irregular). Therefore, a (rising, sinking) coast has good harbours. Therefore, the (west, east) coast of N.A. is a (rising, sinking) coast. The ice-sheet in N.A. extended as far south as latitude (30°, 40°, 50°, 60°). The (Colorado, Potomac, Mohawk) river was influenced by it.

2. Draw diagrams showing a rift valley, a meander, a syncline, a section between San Francisco and Philadelphia.

3. Tell in 3 sentences how each of the following places were made : the Great Lakes, the Rocky Mountains, the valley of California, the islands in Puget Sound, the region round New Orleans.

4. Describe the relief of the Southern Appalachian Region Draw a sketch map to illustrate your answer.

5. What are the advantages and disadvantages for cotton manufacture in New England ?

6. Why does cotton grow in the Southern Appalachian Region ? Draw a sketch map to show where it grows.

7. What has caused the growth of large cities on the Southern shore of Lake Erie ? Draw a sketch map to illustrate your answer. Show the cities.

8. Name a city or cities where you will find the following occupations and say why it is found there : flour-milling, motor-car manufacture, meat-packing, oil export, cinema, silver-mining, fruit-drying.

9. What would you find (name the relief, rivers, climate, communication) if you went from North to South in the Central part of the Rocky Mountain Region ? Name the items in order, from North to South.

10. Write not more than 5 sentences contrasting the conditions in California and the region north of it, with the coasts of New England and the Southern Appalachian region.

11. On the map given to you mark the following places : Welland Canal, Panama Canal, the boundaries of the U.S., the Yucatan Peninsula, Adirondack Mountains, Coast Range, showing the *Gaps*, the Willamette valley. Also fill in the map accordlng to the key which is given ; that is, if the key says cotton, mark the cotton regions with it. Do not forget Mexico.

Report of the Tamil Geographical Terms Committee of the Association

The Convenor of the Tamil Geographical Terms Committee of the Madras Geographical Association has the honour to present the following Report of the Committee's work :—

The Madras Presidency Tamil Sangam had prepared a list of Tamil Equivalents for Geographical Terms as part of its general activities along with other scientific terms. At its Conference held in Madras last year, the list was scrutinised and revised by a Committee presided over by the Secretary of the Association. On his suggestion, this list was sent to the Association for classification, supplementing and further revision, for which purpose the Working Council appointed a Committee consisting of the following members :—(1) Rao Bahadur R. Krishna Rao Bhonsle ; (2) Mr. S. Balakrishna Iyer ; (3) Mr. K. C. Viraraghava Iyer ; (4) Mr. M. S. Sabhesan ; (5) Miss A. Devadasen ; (6) Pandit Krishnaveni Ammal ; (7) Mr. S. Muthukrishna Iyer ; (8) Mr. B. M. Thirunarayanan ; (9) Mr. K. Srinivasaraghavan ; (10) Mr. K. M. Subramaniam ; (11) Mr. K. Sundaresan ; (12) Mr. V. Kalyanasundaram ; (13) Mr. S. S. Krishnaswami ; (14) Mr. R. Lakshminarasimham ; and (15) Mr. N. Subrahmanyam (Convenor).

At the first meeting of the Committee held on 10-10-1936, it was resolved to supplement and classify the terms first under the following heads :—

1. Mathematical Geography.
2. Cartography.
3. Physical Geography.
4. Geomorphology (including Geology).
5. Hydrography.
6. Climatology.
7. Bio-Geography.
8. Regional Geography.
9. Economic Geography.
10. Historical and Political Geography.
11. Anthropo-Geography.
12. Pedagogy of Geography.

In the same meeting, after a thorough discussion with regard to Tamil equivalents, the following criteria were adopted in order of preference :—

i. Usage : (*a*) Literary ;
(*b*) Madura colloquial among educated people ; and
(*c*) Sectional Usage.

ii. Intelligibility.

iii. Simplicity.

iv. In coining new terms preference to be given in the following order :—
(*a*) Tamil words.
(*b*) Sanskrit words.
(*c*) Foreign words to be translated being adapted.

v. Conformity to other technical vocabularies in related subjects.

The Committee met thirty times between 10-10-'36 and 30—3—'37, for about two hours on each occasion ; and the work was completed before 31st March 1937, and handed over to the Secretary of the Madras Presidency Tamil Sangam, who will publish it with the Tamil equivalents.

The Working Council feels highly thankful to the members of the Committee for having carried out the arduous and valuable work very creditably and successfully. Special mention has to be made of the steady and earnest work of Pandit Krishnaveni Ammal, who never missed a meeting and whose advice and suggestions were found very helpful to the Committee.

It is proposed to appoint Committees to prepare equivalents in other South Indian languages for the geographical terms in the list now prepared by the Tamil Committee.

Summer School of Geography, April 1937

The Secretary of the Association has the honour to present the following Report regarding the organisation and conduct of the Summer School of Geography held in April 1937 :

In accordance with the Resolution of the Working Council, passed at its meeting held on 6th February 1937, the Secretary published the Prospectus of the Summer School in the local dailies and answered queries. 22 teachers were selected, including two ladies. 12 of the teachers were graduates and the rest were under-graduates. (Appendix I).

Diwan Bahadur S. E. Ranganadham opened the Summer School at the Teachers' College, Saidapet, on Wednesday the 7th April 1937. At 10 A.M. on that day the teachers attending the course and the guests invited for the occasion assembled at the hall. Mr. N. Subrahmanyam, the Secretary of the Association, made a statement (Appendix II), tracing the history of the Summer School and explaining its aims and objects. He then requested Mr. Ranganadham to open the Summer School. Mr. Ranganadham then delivered his address (Appendix III), after which he formally opened the Seventh Summer School of Geography. Miss E. D. Birdseye, the President of the Association, gave the Inaugural Address to the teachers, after which the meeting closed with vote of thanks.

The work of the Summer School went on steadily for three weeks ; and the following scheme of work was gone through :—

(*a*) *The Pedagogy of Geography (including syllabuses)*. By Mr. N. Subrahmanyam.

(*b*) *Elementary Surveying*. By Mr. George Kuriyan, assisted by Mr. K. Srinivasaraghavan.

(*c*) *Map Work*. By Mr. N. Subrahmanyam.

(*d*) *Diagrammatic Methods*. By Mr. S. Balakrishna Ayyar.

(*e*) *Mathematical Geography*. By Mr. S. Muthukrishna Ayyar.

(*f*) *Land Forms*. By Mr. P. G. Dowie.

(*g*) *Climate and Weather*. By Mr. N. Subrahmanyam.

(*h*) *Economic Geography*. By Mr. B. M. Thirunarayanan.

(*i*) *Anthropo-Geography*. By Miss Mary W. F. Waddington.

(*j*) *Cartography*. By Mr. K. Srinivasaraghavan.

Excursions were conducted to the following places: Ennore Backwaters, Madras Harbour, Pallavaram Hill, St. Thomas Mount, Sriperumbudur, Trivellore, Alicoor Sea-Caves and Red Hills (Appendix IV). At 3 P.M. on Friday the 30th April, Mr. B. M. Thirunarayanan delivered the Valedictory Address, with which the Summer School was brought to a formal close.

The total collection of fees amounted to Rs. 220, out of which a sum of Rs. 202-8-0 was expended on conveyance allowance of lecturers, clerical and other service and miscellaneous expenses. This account will be audited as part of the general account of the Association for the quarter ending 30th June 1937. The net balance of Rs. 17-8-0 has been carried to the Association Fund.

The thanks of the Association are due to the Lecturers for their honorary work in the Summer School as well as to the Director of Public Instruction, Madras and the Principal, Teachers' College, Saidapet, for permitting the Officers of the Department of Education to work in the Summer School and for allowing the classes to be held in the Geography Department of the Teachers' College, Saidapet.

Madras, N. SUBRAHMANYAM,
1st May 1937. *Secretary.*

THE ELEVENTH ANNUAL MEETING OF THE MADRAS GEOGRAPHICAL ASSOCIATION

The Eleventh Annual Meeting of the Association was held at 5 p.m. on Monday the 26th April, 1937 at the Teachers' College, Saidapet with Mr. S. Muthukrishna Ayyar, M.A., L.T., in the chair. The Eleventh Annual Report for the year 1936-37 was read and adopted, (published elsewhere in this number). It was then resolved that the Calendar Year be adopted as the official and journal-year of the Association from 1st January 1938, and that the current year consist of 9 months only from 1st April to 31st December, 1937. Regarding the proposal to raise the subscription, it was decided to retain the existing rate and to carry on an intensive membership campaign to meet the increasing cost of the Journal. The following persons were elected as members of the Working Council for the year 1937:—Miss J. M. Gerrard, (*President*), Rao Bahadur R. Krishna Rao Bhonsle and Rao Saheb C. M. Ramachandra Chettiar (*Vice-Presidents*), Mr. N. Subrahmanyam (*Secretary*), Mr. K. Srinivasaraghavan, (*Treasurer*), Mr. George Kuriyan, Mr. B. M. Thirunarayanan, Mr. P. G. Dowie and Miss Mary W. F. Waddington (*other members of the Council*).

APPENDIX I

TEACHERS WHO ATTENDED THE SUMMER SCHOOL OF GEOGRAPHY IN APRIL, 1937.

1. R. E. Dawson, Secondary Trained, Wesley High School, Royapettah.*
2. B. S. Gajendragad, B.A., B.T., P.D.J. High School, Bijapur.
3. S. V. Ghurye, B.A., Dip. in Phy. Ed. Dilarwarkhanji High School, Verawal, (Kathiawar).*
4. *Kamalam Jebamoni*, Secondary Trained St. John's Girls' High School, Nazareth.
5. G. S. Jayaram Sarma, Secondary Trained, Methodist Mission High School, Negapatam.
6. R. P. Joseph, Secondary Trained, Sree Shanmugananatha Patasala, Mylapore.
7. T. V. Kachapeswaran, B.A. (Hons.) Trained, Tirupattur.*
8. V. D. Kelkar, B.Sc., B.T., Model High School, Kolhapur.*
9. D.B. Kothiwale, B.A., B.T., S.T.C., Model High School, S.M.T. Training College, Kolhapur.
10. S.A. Misseur, B.A. Trained, St. Xavier's High School, Tuticorin.*
11. S. Narasimha Desikan, Secondary Trained, Kil Kovalavedu, P.O., Wandiwash Taluk.*
12. I.V.L. Narasimhamurty, B.A. (Parts II & III only), Taylor High School, Narasapur.
13. V. Nesaratnam, B.A., Trained, Kellett High School Triplicane.
14. Ch. Purushotham, Secondary Trained, C.B.M. Higher Ele. School, Akidu.
15. A. Rajaratnam, B.A. Trained, Nagercoil.*
16. J. Selvaraj, Secondary Trained, Pasumalai Training School, Madura.*
17. A.N. Sowmya Narayanan, Secondary Trained, Saidapet.*
18. P. Srinivasan, Secondary Trained, Perungathoor, Cheyyar Taluk.*
19. N. D. Susainathan, Secondary Trained, M.E.L.I.M. High School, Ambur.
20. T. M. Velayutham, Secondary Trained, A. C. Sivalaul's Ely. School, Triplicane.
21. V. Venkatasubramaniam, B.A., Trained, Mylapore.*
22. Visalakshi Narayanaswami, B.A., National Girls' High School, Mylapore.*

N.B.—Those marked with an asterick attended on their own account. The others were deputed.

APPENDIX II
SECRETARY'S STATEMENT

Before giving an account of the Summer Schools of Geography, conducted by the Association, or explaining their aims and objects, I wish first to pass in review the circumstances under which the Association was formed and the holding of these courses was found a necessity. Up to the year 1906, the old Geography

was still taught in South Indian schools ; but from that year to 1911, an attempt was made to improve the teaching of Geography by introducing a better type of questions in the Matriculation paper and by arranging Christmas Vacation Courses for the benefit of teachers of Geography in the Presidency. But in the S. S. L. C. Scheme, which was ushered in 1911, Geography was put into the B. Group of subjects, in which there was no public examination, with the result that the subject was generally neglected. When, five years later, even this position was lost for Geography by the B-Group History of the British Empire being substituted for it. Even the pupils of forms I to IV learnt to neglect a subject, which had no place in the higher classes of the High School. That was the position of High School Geography for about two decades from 1911 to 1930, when the remodelled S. S. L. C. Scheme got it a proper place, at least in theory.

The University of Madras had meantime decided to do something for Geography as a result of the initiative taken by Messrs. G. Slater and R. G. Grieve. In the L. T. Course Geography was separated from History, of which it was till then a subordinate part ; and in the remodelled Intermediate Course it was included as one of the subjects under Group I of Part III. In the new-born enthusiasm for the subject, six colleges had provided for its teaching in the Intermediate stage ; but as the Commissioner sent out to inspect these colleges reported that the staff and equipment were not up to the mark, they had to drop the subject. The Madras Christian College alone continued the teaching of the subject for some time longer, until the Geography lecturer left the College, when that College too followed suit. At present, therefore, there is no college for men in the Presidency that has provided for teaching Geography at the Intermediate or B.A. stage, while Queen Mary's and Sarah Tucker's Colleges for women have Intermediate Geography. I am glad to learn that Queen Mary's is arranging to introduce shortly Geography as a Degree subject in the B.A. course.

The University of Madras instituted the Diploma Course in Geography about five years ago, which practically takes the place of the Degree ; and the fullest qualification for a teacher of Geography will now be to take first the Degree or the Diploma and then to undergo the L.T. training in the Teachers' Colleges. Unfortunately, teachers in South India have not begun to realise the value of the Diploma course—the need for learning the subject-matter, before undergoing training in the methods of teaching the

subject. Luckily, Principals of Training Colleges have been showing preference in the matter of admission to the L.T. class to those few applicants who have taken the Diploma in Geography ; and this should open the eyes of prospective teachers of Geography.

The Madras Geographical Association, which was formed in 1926, has, among its multifarious activities, taken on itself the task of supplementing the supply of qualified teachers of Geography and rendering help to them in their attempts to improve themselves. Since 1928 a series of Summer Schools were held at Saidapet and elsewhere, which have trained more than 350 teachers of Geography. In these Schools the actual teacher of Geography who has been doing his work without any kind of technical qualification for it, is given the guidance and light that he requires in the way of practical work and modern methods of handling the subject. He is given the training which would normally require two terms' work, in the course of a short period, by means of intensive effort along a concentrated course of studies, judiciously chosen for their value and importance from the point of view of the teacher. The course consists mainly of practical work, field work and excursions, and presents the salient points in such essential matters as map-making, map-reading and map-correlations, the study of land forms, climate and weather, use of graphic methods and statistics, and construction of diagrams, models and appliances. A few general lectures illustrative of geographic method and view-point are also delivered. In view of the recent issue of a revised scheme and syllabus for Forms I to III by the Madras Educational Department, the needs of the middle school teacher of Geography will also be specially attended to as in the last two years.

Dewan Bahadur S. E. Ranganadhan is a great educationist, who had steadily risen as Professor, Principal and Vice-Chancellor of a South Indian University. If what the birds whisper is going to prove true, he will be the Vice-Chancellor of another and a bigger University, and as such will have a full hand in the further shaping of the geographical studies of that University. With his rich experience and wide outlook, there is no doubt that he will act in the best interests of this new and important subject of Geography, bringing it into line with its position in advanved Universities abroad. With these words, I have great pleasure in requesting Mr. Ranganadhan to open the Summer School of Geography.

APPENDIX III.

MR. DEWAN BAHADUR S. E. RANGANADHAN'S PRESIDENTIAL ADDRESS

Dewan Bahadur S. E. Ranganadhan in declaring the School open, said that he considered the organisation and conduct of these Summer Schools as one of the most helpful activities of the Association for the improvement of the methods of geography teaching in this Province. The position of Geography was not very satisfactory in the Colleges in this Province and it would continue to be so as long as there was no adequate provision in the colleges for instruction in geography as a special subject in the Intermediate and B.A. degree courses.

There had been some notable improvements in recent years in Madras, said Mr. Ranganadhan, in regard to the general recognition of geography, of the importance of geography in the educational system. He would say that the Madras Geographical Association itself had during the past ten years done a great deal of valuable work in various directions in popularising the subject, and in generally helping to secure for geography its proper place in the educational system. The Madras University established five years ago the Department of Geography which in all probability would be made a permanent research department before long. Thus there was ground for hope that the position of geography in this Province would grow steadily better and that the teaching of geography in schools would become really efficient and effective.

Referring to the course planned for the Summer School, he said that they had subjects like map-work, elementary surveying, climate and weather, mathematical, statistical and economic geography. It would be seen therefrom that Modern Geography really combined in a remarkable manner the discipline of scientific study with strong human interest. To the speaker's mind, one of the striking features of the modern study of geography was that it related the life of the student to his environment in a most interesting manner. Whatever method might be adopted in the study of the subject, there was always scope for making the teaching practical and for getting the students to observe and to study things for himself either by way of comparison or by way of contrast and to relate his new knowledge to his own experiences. Another advantage of the study of the subject was that when properly taught it should enable the student not only to have an intelligent understanding of the world in which he lived

but also of the very many social and economic problems which loomed so large at the present day. More than that, if geography was properly taught, the student should be able to realise that modern life was a large co-operative enterprise on an international basis and that in spite of all their national and racial barrers and antagonisms, they were truly members of one world community. Probably more than other subjects, Geography would enable the student to equip himself with a knowledge of the highest social value and provide him with interest in life, interest with which he could occupy even his leaisure hours with profit and pleasure to himself. Whether they had any grounding in the subject or not, he hoped that the course which had been planned for them, and which was a fairly intensive one, would stimulate a living interest in Geography, would give a real insight—not a mere textbook knowledge and would awaken an enthusiasm for the subject, which would enable them to communicate it to their students.

APPENDIX IV

EXCURSIONS OF THE SUMMER SHOOL

Besides three short excursions to Ennore Backwaters, the Madras Harbour and the Pallavaram Hill as in previous Summer Schools, one major excursion was conducted by bus as a sort of a circular tour. Leaving the Teachers' College, Saidapet, at 2 P.M. on Thursday the 22nd April 1937, the party first went to **St. Thomas Mount**, the historic hill connected with the Apostle St. Thomas, with some monuments on it. From the top of it the country round was surveyed with the help of the one-inch map, especially from the point of view of land utilisation in relation to slope, alignment of roads and proximity to urban areas.

On the route from **St. Thomas Mount to Poonamalle**, the wet and dry crops in relation to level of land and water availability, the correlations of the brick industry, the vegetable, plantain and jasmine gardens—all depending on the city market, the formation and plan of roadside villages, etc., were observed and noted as part of the field study. The length-wise development of Poonamalle town, a nodal centre on the route was noted.

From Poonamalle to Sriperumbudur, the general topography of the country travelled was examined and compared with the one-inch map. Specially noteworthy were the dissected badlands at

one place on the margin of the Sembarambakkam tank, and the Bangaru supply channel leading into it from the Cooum. **Sriperumbudur**, a typical shrine, the birth-place of the Vaishnavite apostle Sri Ramanujacharya, interesting also geographically as situated in a fertile basin, irrigated from a big tank, afforded scope for geological study in its jurassic shale-beds, where a vigorous search was made for fossils. This town is another nodal centre with roads radiating in several directions.

Tiruvellore, another temple-town and meeting-place of roads with its picturesque tank and gopurams was reached at dusk ; and a halt was made there for the night. Early next morning (Friday, the 23rd), the party left Tiruvellore ; and after visiting the ruined fort at **Tirupasore**, reached Gunipalayam about 8-30 A.M. The wet cultivation with plantains and betel gardens round about Tiruvellore area, apparently with the water-table near enough to the surface and with facilities for irrigation, afforded a study in contrast to the higher and drier areas farther off on the route, which were covered with casuarina topes and scrub jungles.

At **Gunipalayam**, the bus was left; and with the help of the local guides and the one-inch map the party tramped and reached the caves by about 10-30 A.M. The trough-axes and the stream-courses alternating with the ridge-lines, the xerophytic vegetation and the conglomerate beds with the disintegrating pebbles of all sizes, making the tramp rather slow, tedious and unpleasant, and the varieties of rocks that were scattered about plentifully—all these afforded food for study, both geographical and geological.

After a lunch of sandwiches, oranges and tender coconuts, the party explored the environs of the bigger cave (about 300 feet long, 150 feet high and 150 feet deep) as also the higher valley surmounting it, surrounded by a circular ridge. These sea-caves, as Bruce-Foote called them, had provoked a controversy about their origin, which was discussed at a meeting of the Madras Geographical Association in last March ; and further visits and explorations will be needed before a final view can be pronounced. But the wonderful processes of Nature in silent evidence here—in the shaping of the millions of pebbles, in their later consolidation into conglomerate beds and in the formation of the caves whether by sea-action or by direct water action—though present in their results only, afforded scope for interesting study and investigation: and all this within 50 miles of Madras. These conglomerate beds formed a strange contrast to the shale beds at Sriperumbudur,

which must have formed in deep waters. A sudden thunderstorm at about 2 P.M. prevented further tramps on the higher parts; and the party returned drenched to Gunipalayam, where they got into the bus. Special mention may be made of the good help rendered by the Village Munsiff of Gunipalayam and the Board School Headmaster, who arranged to supply guides, coolies, water vessels, etc.

Leaving Gunipalayam about 4 P.M., the party retraced their way back to Madras, visiting the Red Hills tank on the way. The whole excursion proved to be highly instructive and interesting, besides being economical in cost.

News and Notes

The 12th Volume of the Journal commences with this number. From the Report of the XIth Annual Meeting published elsewhere, it will be noted that the present official year of the Association will consist of 9 months only—from 1st April to 31st December 1937, and that from 1st January 1938 the official year will coincide with the calendar year both for the Association and the Journal. There will, however, be issued four numbers of the Journal as usual for the current year also—in April, July, October and December 1937, and there will, therefore be no change in the subscription.

* * * * * *

To meet the recurring deficit caused by a fall in the number of members and by the arrears of subscription, the Working Council had recommended to the General Body the raising of subscription. After discussion, however, it was decided to carry on an intensive propaganda during the current year for enlisting more members and subscribers, and to appeal to the existing members to be prompt and punctual in the payment of their subscriptions and to arrange to clear off arrears at an early date. The financial position will be reviewed and the question of raising the subscription will be taken up, if necessary, at the next annual meeting.

* * * * * *

Miss J. M. Gerrard, M.A., Principal, Lady Willingdon Training College has been elected President of the Association for 1937 in place of Miss E. D. Birdseye who is going home on furlough. We have great pleasure in welcoming to our midst Miss Mary W. F. Waddington, B.A. (Hons.) (Bristol) of Ewart School, who has been elected as a member of the Working Council.

* * * * * *

An ordinary meeting of the Association was held on 10-3-37 at the Presidency College, with *Prof. C. K. Pillai* in the Chair, when *Mr. B. M. Thirunarayanan* opened a discussion on *the Sea-Caves and Sea-Cliffs of Alicoor*, and *Mr. P. G. Dowie* replied.

* * * * * *

There was no other meeting held during the quarter ; but, the *Tamil Geographical Terms Committee* continued to meet frequently and finished its labours. A Report of its work is printed elsewhere in this number.

* * * * * *

The Coimbatore Branch of the Association has been continuing to work well under the enthusiastic guidance of its President, Rao Saheb C. M. Ramachandra Chettiar, who has been elected one of the Vice-Presidents of the Association for the current year. After Mr. S. Natesan, the energetic Secretary of that Branch left Coimbatore, Mr. G. Narayanaswami was elected Secretary in his place. He conducted the activities of the Branch as efficiently during the quarter.

* * * * * *

A meeting of that Branch was held on 6-2-37 under the Chairmanship of Mr. E. H. S. Abraham, Commissioner of Coimbatore Municipality, when Mr. C. G. Ponapa, Waterworks Engineer of the Municipality delivered a lecture on "*Siruvani and Coimbatore*".

* * * * * *

The next meeting of the Branch was held on 29-3-37 under the Chairmanship of Rao Bahadur K. R. Venkataramayyar, Retired Conservator of Forests, when Rao Bahadur T. S. Venkatarama Ayyar, C.I.E., delivered a lecture on "*the Romance of Sugarcane Breeding*".

* * * * * *

The Seventh Summer School of Geography was conducted in the Teachers' College, Saidapet from the 7th to the 30th April, 1937. A Report of its working is published elsewhere in this number. Attention is drawn to the major excursion that was conducted for a day and half as a part of the course, described elsewhere.

* * * * * *

It is understood that the Bangalore Educational Association is organising a special course of lectures on Geography for the benefit of the Secondary School Teachers; and the programme is arranged tentatively to be conducted for a fortnight in June, commencing from the 9th of the month.

* * * * * *

The second Refresher course in Geography organised by Mr. D. Samuel, M.A., L.T., District Educational Officer, Tinnevelly, was conducted by Mr. T. S. Sundaram Ayyar, Geography Assistant, Tirthapati High School, Ambasamudram, for the benefit of Geography teachers in the Tinnevelly and neighbouring districts. The course was held from the 14th to 24th April 1937. 34 teachers from schools in the Tinnevelly and Ramnad districts attended the course, which included practical work in land forms, weather and climate, map-reading and map-correlation, statistical work, graphic methods and elementary surveying and an excursion to the gravel-

mound west of the railway line to observe rock sedimentation and land sculpture. Some time was devoted to the new middle school syllabus in Geography.

* * * * * *

In the course of his Presidential Address, opening the Summer School, Dewan Bahadur S. E. Ranganadhan said: "The position of Geography is not very satisfactory in the Colleges in this Province; and it will continue to be so as long as there is no adequate provision in the Colleges for the instruction in Geography as a special subject in the Intermediate and the B.A. Degree courses." The University of Madras has done its bit by passing Regulations for those courses and by conducting the Diploma Course in Geography; but, no men's college has taken a forward step in this direction; and even the Government and the Educational Department, which can be expected to give a lead to other managements, has not yet moved in this matter.

* * * * * *

The neglect of the subject by the Colleges naturally reacts on the schools, where its position continues to be unsatisfactory in spite of its theoretical equality with the rest of the school subjects. Very few High Schools have provided for the teaching of C. Group Geography: Why so?

* * * * * *

Mr. Ranganadhan said further on: "The Madras University established five years ago the Department of Geography which in all probability will be made a permanent research department before long." Now that Mr. Ranganadhan has become Vice-Chancellor of the University, we have no doubt that so far as it is concerned the position of Geography will steadily improve. Will the College authorities co-operate and do their bit by providing for the teaching of the subject?

* * * * * *

Meantime, it is reported there is a tragic attack on the position of the qualified teacher of Geography from an unexpected quarter. The North Arcot District Board was one of the very first, if not the only one, to sanction and appoint a separate Geography assistant for each of its High Schools. It is now understood that these appointments are to be cancelled. We hope that the information is wrong and that the Board will not take such a retrograde step.

* * * * * *

We are glad to announce that Geography will be one of the special subjects of training in the newly started Meston Training

College at Royapettah, and that Mr. B. Clutterbuck, M.A. (Oxon.) will be at the Head of that Department.

* * * * * *

Among the four or five South Indian Universities, the Madras University is the only one in which Geography has some fair position accorded to it of late, at least theoretically. The other Universities more recently started lost a splendid opportunity of giving it a proper place, when they had to write on a clean slate. *What will Travancore do? Sir C. P. Ramaswami Iyer* and *Dr. J. H. Cousins*, both dynamic men of vision, inaugurated the Madras Geographical Association in 1926. They are now at the making of the new Travancore University. Is it too much to expect them to give Geography its full-fledged position, which it has in all progressive Universities abroad? A Diwan, who has already done so much to work up the potentialities of South India and who is still working at it cannot but arrange to accord a right place to a subject that is closely connected with the study of those potentialities. A philosopher who has a hand in the shaping of a new University will surely not neglect a subject which is itself a philosophy on the mundane plane.

* * * * * *

In the Seventh World Education Conference to be held at Tokyo during August next, Mrs. P. S. Sundar Raj will represent the Madras Geographical Association as a delegate, and Mr. A. V. Kutti Krishna Menon will represent the South Indian Teachers' Union.

* * * * * *

The International Geographical Congress will meet at Amsterdam from July 18th to 28th, 1938. There will be field excursions before, during and after the session, which will include an excursion by boat along the Netherlands coast, and visits to the mining districts, the polders, the glaciated districts etc. There will also be a voyage of some ten weeks' duration to the Dutch East Indies.

* * * * * *

The Indian Science Congress, which holds its annual meeting in the first week of January every year, had included Geography for the first time along with the Geology Section in 1936 and 1937. It is gratifying to have to announce that for the next (Silver Jubilee) Session to be held at Calcutta from the 3rd to the 9th January 1938, *Geography and Geodesy* have been constituted into a separate section with Dr. A. M. Heron, Director of Indian Geological Survey as its President. Mr. N. Subrahmanyam has been appointed the Recorder of the Section for this Session, Dr. S. P. Chatter-

jee the Sectional Correspondent and Mr. D. P. Ghosh the local Sectional Secretary. This Silver Jubilee Session will be a joint session with the British Association for the Advancement of Science, under the general Presidentship of Lord Rutherford. About a hundred scientists from Great Britain and a number from other countries will be coming to India for the meeting. It is hoped that several members of the Association will become members of the Congress, contribute papers for the newly constituted Geography Section and attend the Session.

FOR SALE

A Relief Model Map of the World. By M. S. Paul. Price Rs. 40. 40″ by 24″: coloured attractively in the appropriate manner, and lettered neatly in Tamil, and framed artistically. Won gold medal at the Tanjore Educational Exhibition, May 1937. A good piece of equipment for any secondary or high school. Available for inspection at the premises of the Madras Geographical Association. *Apply to the Secretary,* Gopalapuram,

Cathedral Post, Madras.

Mr. M. S. Paul will be glad to prepare Relief Maps to order for any institution.

Reviews

Exercises in Cartography. By Frank Debenham. (Blackie & Son, Ltd., London & Glasgow). 1937. Price 8*sh.* 6*d.* net.

It is desirable for students of Geography to acquire a fair knowledge of and reasonable facility in the processes of Cartography, pretty early in their training; and Prof. Debenham has laid them under a debt by publishing the collection of exercises, which "represents what is actually done by first-year students at the Department of Geography at the Cambridge University".

The following are the chapter-heads: Drawing Instruments and Materials; Scales and their Variations; Copying, Enlarging and Reducing; The Measurement of Area; Exercises with Contour Lines; Relief Models; Block Diagrams; Lettering; Graphic Methods in Field Astronomy; Map Projections. These heads show the comprehensiveness of treatment, that is characteristic of the book, examples being chosen from all branches of Cartography with which the Geographer has to be conversant with. Practice is given in the use of the several instruments and processes involved. The numerous figures and diagrams and the mathematical tables in the Appendix will enable anybody to work at the exercises without personal supervision. Thick paper, big type and nice get-up make the volume quite attractive. Diploma and Degree students of Geography can use the book with profit.

The Petrology of the Hornblendic Rocks of the Kolar Schist Belt. By M. B. Ramachandra Rao, (Mysore Geological Department, Bangalore), 1937. Price Re. 1.

This bulletin is an abridgement of the author's thesis for his M.Sc. degree. After examining the petrology, specific gravity and the chemical characteristics of the main rock types, he examines their origin, which is of course igneous as already held by the Mysore Geological Department. But he proceeds to show that these hornblendic rocks of the Kolar Schist Belt have originated by the alteration of a series of basaltic flows which can be matched with the Deccan Trap and other Plateau Basalts. The associated amphibolites, hitherto believed to be of a later intrusive origin, are now shown to be probably derived from the corresponding pyroxenities, etc., originally formed by the crystallization-differentiation of the basaltic magma.

Geography of the Madras City. By K. R. Rajam. (The City Publishing House, Madras). Price As. 5.

This Geography of Madras City has been written on refreshingly new lines. In the first part which introduces the pupils to different parts of the world the method of imaginary journey has been adopted in order to rouse the interest of the children; and facts of outstanding value regarding peoples of other lands have been presented. In the second part dealing with the city of Madras while the same method has been continued, the scope for observation and practical study has been utilised to some extent. Rightly avoiding the treatment by Municipal divisions, a more natural order has been selected for the treatment of the component parts of the city. The language is simple and clear, and the type bold and attractive. The book is illustrated with pictures and sketch maps.

The Industrial and Agricultural Potentialities of the Tinnevelly Dt. By B. S. Srikantan and S. Krishnaswamy. (The Tinnevelly District Commercial Association, Palamcottah).

This short pamphlet is meant to offer only a general introduction to the various industries and crafts in the district, and does not attempt any exhaustive treatment of the individual headings, which is expected to be done by a series of separate monographs to follow. After giving the general geographical setting in the first section, the authors discuss the agricultural and industrial conditions of the District in the next two. Especially valuable are (1) the listing of the agricultural drawbacks and the improvements suggested on pp. 16 and 17, and (2) the discussion of the scope for industrial expansion in the future from p. 24 onwards. A map, some diagrams and more up-to-date statistics will increase the value of this stimulating pamphlet.

Books and Journals Received

Exercises in Cartography: By Frank E. Debenham.
The Industrial and Agricultural Potentialities of the Tinnevelly Dt. By B. S. Srikantan and S. Krishnaswamy.
Correlation of Weather Conditions and Yield of Cotton in the "Northerns" and "Westerns" Tracts: By R. Ramakrishnan.
The Petrology of the Hornblendic Rocks of the Kolar District: Bulletin No. 16 of the Mysore Geological Dept.
The Geographical Magazine: February, March & April 1937.
The South Indian Teacher: January, February, March and April 1937.
Calcutta Geographical Review: September, 1936.
Educational India: February, March and April 1937.
Kalaimagal: February, March and April, 1937.
The Indian Educator: February, March and April, 1937.
The Geographical Journal: February, March and April, 1937.
The Karnatic Historical Review: January-July, 1936.
Journal of the Annamalai University: January 1937.
Brahma Vidya: Adyar Library Bulletin: Vol. I, Parts 1 and 2.
Foldrajzi Kozlemenyek: Hungarian Geographical Review: Vol. LXIV, Parts 6-7 and 8-10.
Geography: March 1937.
The Educational Review: February, March and April 1937.
Our Home Magazine: March 1937.
Report of the Tamil Sscientific Terms Committee.
The Scottish Geographical Magazine: March 1937.
Journal of Indian History: December 1936.
Geographical Review: April 1937.
Indian Journal of Economics: April 1937.
Indian Co-operative Review: January-March 1937.
Akademiya Navk—U.S.S.R.: *Trudi Institute Fizicheckoi Geografii*: Book 24. (1937).

Select Contents of Current Periodicals

The Geographical Journal : November 1936.

The Quetta Earthquake—By C. P. Skrine. (By an eye-witness with photographs and a map).

The Geographical Journal : December 1936.

The Mount Everest Expedition of 1936—By Hugh Ruttledge. (Illustrated with full-page blocks ; and with appendices on Selection and Training of Porters, Transport, Wireless, Photography, Snow Conditions on the North Col, Health, Physiology, the Oxygen Problem and Collecting.)

The Geographical Journal : March 1937.

The Arun River Drainage Pattern and the Rise of the Himalaya—By L. R. Wager (Illustrated).

The Geographical Journal : April 1937.

The Population of Bengal, its Distribution and Changes : A Contribution to Geographic Method—By Arthur Geddes. (With maps).

The Scottish Geographical Magazine : January 1936.

The Highlands of Abyssinia—By Major R. E. Cheesman. (With illustrations).

The Scottish Geographical Magazine : March 1936.

A New View of Some Familiar Indian Rainfalls—By H. A. Matthews. (With diagrams).

The Scottish Geographical Magazine : July 1936.

Some Problems of Population in India—By J. N. L. Baker. (With maps). Comparison of conditions in four typical regions—Bengal, Travancore, Hyderabad and the Punjab.

The Scottish Geographical Magazine : March 1937.

Spain : Some Geographical Factors in the Crisis—By Arthur Geddes. (With map).

Geography : March 1936.

1. Can We Teach Geography Better ?—By J. Fairgrieve.
2. Region and Race—John L. Myres.
3. An Experiment in Using Accounts of Voyages of Cargo-Ships for the Teaching of Geography—By Alfred H. Shorter.

Geography : June 1936.

1. The Soils of Britain and Their Classification—By E. M. Crowther, W. G. Ogg, S. W. Wooldridge, and L. D. Stamp.
2. Round the World by Cargo Boat—By Ernest Young.

Geography : September 1936.

1. The Romance of the Antarctic Seas—By Hugh Robert Mill.
2. Some Aspects of Irrigation Development in the Western United States—By H. J. Wood.

Geography : December 1936.

1. Geography from a Railway Train—By Stanley H. Beaver.
2. The Site of Damascus—By Jean Garrett.
3. Experimental Study of the Value of Broadcast Geography Talks in a Junior School—By A. J. Starr.

The Geographical Magazine : June 1936.

Pagan—By E. H. M. Cox.

The Geographical Magazine : July 1936.

The Road to Hunza—By E. O. Lorimer.

The Geographical Magazine : August 1936.

Peasant Life in Hunza—E. O. Lorimer.

The Geographical Magazine : October 1936.

Tehran : Capital of the New Persia—Michael Langley.

The Geographical Magazine : December 1936.

Stars from the East : Toomai of the Elephants—Mrs. R. Flaherty.

The Geographical Magazine : February 1937.

Seamen of the Indian Ocean—Denis Palmer.

The Geographical Magazine : March 1937.

With Malays at Sea—G. E. P. Collins.

The Geographical Magazine : April 1937.

Angkor : Miracle of Cambodia—By Rosita Forbes.

Indian Journal of Economics : April 1937.

1. The Transport Problem in India—By B. Mukerjee.
2. Transport Co-ordination—Dr. Anthony Nader.
3. Some Aspects of Rail-Road Competition—Haricharan Ghosh.

The Geographical Review : January 1937.

1. Nationalism and Land Utilization in Britain—By L. D. Stamp (With illustrations and diagrams).
2. Whither Geography ?—By E. G. R. Taylor. (A Review of Some Recent Geographical Texts).

JOURNAL OF THE MADRAS GEOGRAPHICAL ASSOCIATION

Back numbers of the Journal and reprints of articles from them are given away at specially reduced rates as shown below up to 31st December 1937. Every one of these back issues contains important articles of permanent value; and it is an opportunity for individuals and institutions to complete the series. Non-Journal members can go in for those issues which contain articles in which they are specially interested. The prices given below do not inclued postage.

Vol. I. No. 1 .... As. 4
,, No. 2 .... As. 6
,, No. 3 .... As. 4
,, No. 4 .... As. 4
The whole volume .... Re. 1.

Vol. II, No. 1 .... As. 6
,, No. 2 .... As. 3
,, No. 3 .... As. 4
,, No. 4 .... As. 6
The whole volume .... Re. 1 As. 4.

Vol. III, No. 1.................... As. 5
,, No. 2 .... As. 6
,, No. 3 ..-.................. As. 10
,, No. 4 .... As. 7
The whole volume .. Re. 1 As. 8.

Vol. IV, No. 1 .... As. 6
,, No. 2 .... As. 4
,, No. 3 .... As. 10
,, No. 4 .... As. 4
The whole volume .... Re. 1 As. 4.

Vol. V, No. 1.................... As. 5
,, No. 2-3 .... Re. 1
,, No. 4 .... As. 5
The whole volume .... Re. 1 As. 8

Vol. VI, No. 1 .... As. 5
,, No. 2 .... As. 5
,, No. 3-4 .... Re. 1
The whole volume .... Re. 1 As. 8

Vol. VII, No. 1 .... As. 8
,, No. 2 .... As. 8
,, No. 3 .... Re. 1
,, No. 4 .... As. 6
The whole volume .... Rs. 2 As. 4.

Vol. VIII, No. 1 .... As. 6
,, No. 2 .... As. 6
,, No. 3 .... Re. 1
,, No. 4 .... As. 6
The whole volume .... Rs. 2

Vol. IX, No. 1 .... As. 5
,, No. 2 .... As. 6
,, No. 3 .... As. 7
,, No. 4 .... Re. 1
The whole volume .... Rs. 2.

Vol. X, No. 1.................... As. 8
,, No. 2 .... As. 10
,, No. 3 .... As. 12
,, No. 4 .... As. 12
The whole volume .... Rs. 2 As. 8.

Vol. XI, No. 1 .... As. 12
,, No. 2 .... Re. 1 As. 4
,, No. 3 .... As. 13
,, No. 4 .... As. 13
The whole volume .... Rs. 3 As. 8

THE ELEVENTH ANNUAL REPORT OF THE MADRAS GEOGRAPHICAL ASSOCIATION, 1936-37

THE WORKING COUNCIL

For 1936-37.

EX-OFFICIO MEMBERS.

President.

Miss E. D. Birdseye, B.SC.,
Principal, Wesleyan Mission Girls' High School, Royapettah, Madras.

Vice-Presidents.

1. M.R.Ry. Rao Bahadur R. Krishna Rao Bhonsle, B.A., I.S.O.
2. Miss J. M. Gerrard, M.A.,
Principal, Lady Willingdon Training College, Madras.

Secretary.

Mr. N. Subrahmanyam, M.A., L.T., F.R.G.S.,
Lecturer in Geography, Teachers' College, Saidapet.

Treasurer.

Mr. K. Sundaresan, B.A., L.T.,
Geography Master, Teachers' College, Saidapet.

OTHER MEMBERS.

1. Mr. George Kuriyan, B.SC. (LOND.),
Lecturer in Geography, University of Madras.
2. Mr. B. M. Thirunarayanan, B.A., (HONS.),
3. Mr. V. K. Sundaram, M.A., L.T., DIP. IN GEO.
4. Mr. Rao Saheb C. M. Ramachandra Chettiar, B.A., B.L., F.R.G.S.
President, District Educational Council, Coimbatore.

THE ELEVENTH ANNUAL REPORT OF THE MADRAS GEOGRAPHICAL ASSOCIATION, 1936-37.

The Working Council of the Madras Geographical Association has the honour to present the following Report for the year 1936-37 :—

Strength.—The strength of the Association at the commencement of the year was 188 as against 234 at the commencement of the previous year. During the year 2 members passed away, 4 members resigned, and 107 members were removed from the list for non-payment of arrears of subscription. 51 new members were enrolled during the year. The strength of the Association on 31-3-1937, therefore, stood at 172 including 8 life members of whom 4 were admitted during the year. Of the 2 members who passed away, the Council regrets to note the name of M.R.Ry. Rao Bahadur H. Narayana Rao, Avl., who was President of the Association for the first three years of its life.

The Journal had 162 subscribers during the year as against 160 in the previous year. Of these 85 are official subscribers as against 82 in the previous year ; and 77 are member-subscribers as against 78 in the previous year. These figures show that the number of journal subscribers has been practically the same, while the fall has been only in the number of the non-journal members.

Financial position.—The financial position can be seen from Appendix A which shows that the total subscriptions for the year (including the life member subscription of Rs. 400) amounted to Rs. 1,661-0-0. as against Rs. 1,305-0-0 for the previous year. The Association Fund stood at Rs. 477-2-11 at the beginning of the year, and there has been a deficit of Rs. 390-0-5 deducted from it during the year, as shown by the Income and Expenditure Account, which brings down the balance to Rs. 87-2-6. The total of the Association, Research and Capital Funds at the end of the year amounted to Rs. 393-2-6.

It will be seen from the Auditor's Report on the Balance Sheet that " the deficit for the year has mainly resulted by the increase in the Journal expenses." After discussing the financial position of the Association at its meeting held on 6-2-1937, the Work Council resolved " (1) to recommend to the General Body at the next Annual Meeting to raise the subscription for membership from Rs. 2 to Rs. 3, and for the Journal for members from Rs. 4 to Rs. 5

(thus equalising the subscription for Journal Members and for Institutions), and (2) to take steps to increase membership, to enlist new subscribers for the Journal, and to get more advertisements for the Journal".

It was also resolved at the same Meeting to have the Calendar year as the official and journal year of the Association from 1-1-1938. If this proposal is confirmed at the coming Annual Meeting, the current official year will consist of 9 months only from 1st April to 31st December 1937. There will, however, be four issues of the Journal during the period. The increase in the membership subscription may in that case come into effect from 1-1-1938.

The Working Council.—The Working Council met four times during the year; and urgent business was transacted by circulation.

A list of the *Ordinary Meetings* of the Association is given in Appendix B

The Standing Committee.—Three Meetings of the Standing Committee were held during the year. In the first two Meetings the answers to the Questionnaire regarding the Teaching of Geography in Secondary Schools were classified and the findings formulated in the shape of resolutions, which have been published in Vol. XI. No. 4 of the Journal pp. 324-329. A copy of it was submitted to the Director of Public Instruction by the Working Council for information and necessary action.

At its Meeting held on 13-11-1937, the Standing Committee prepared an outline scheme in Geography, suitable for Elementary schools in rural areas, which has been published in the same issue of the Journal.

The (Ad Hoc) Committee on Excursions appointed by the Working Council at its Meeting held on 25-7-1936 has been preparing a scheme of excursions for the study of the Madras Region, which has not yet been completed.

The Madras Presidency Tamil Sangam had prepared a list of *Tamil Equivalents for Geographical Terms* as part of their general work. At the time of its last Conference in Madras, the list was scrutinised and revised by a Committee, presided over by the Secretary of the Association. On his suggestion, this list was sent to the Association for classification, supplementing and further revision, for which purpose the Working Council appointed a Committee consisting of the following members with power to co-opt:—

(1) Rao Bahadur R. Krishna Rao Bhonsle ; (2) Mr. S. Balakrishna Ayar; (3) Mr. K. C. Veeraraghava Ayyar; (4) Mr. M. S. Sabhesan; (5) Miss A. Devadasan; (6) Sri Krishnaveni Ammal; (7) Mr. S. Muthukrishna Ayyar; (8) Mr. B. M. Thirunaranan; (9) Mr. K. Srinivasaraghavan; (10) Mr. K. M. Subramanyam; (11) Mr. K. Sundaresa Ayyar; (12) Mr. V. Kalyanasundaram; (13) Mr. S. S. Krishnaswami; (14) Mr. R. Narasimhan; and Mr. N. Subrahmanyam (convenor). The Committee met 25 times, and the work has been completed. The Working Council, while thanking all the members of the Committee for their services, desires to place on record its grateful appreciation of the work of Pandit Krishnaveni Ammal of Lady Willingdon Training College for her regular attendance all through and her invaluable help in the choice of good and correct vocabulary.

The Vizagapatam Branch of the Association showed very little activity during the year, and appears to be moribund.

The Coimbatore Branch continued to work satisfactorily during the year. The list of Meetings of the Branch is given in Appendix C. This is due to the sympathetic Co-operation of its President Mr. Rao Saheb C. M. Ramachandra Chettiar, B.A., B.L., who was elected during the year as Fellow of the Royal Geographical Society (London). The energetic and steady work of the Secretaries of this Branch, Messrs. S. Natesan and G. Narayanaswami were also to be mentioned in this connection.

The Sixth Summer School of Geography was conducted in the Teachers' College, Saidapet during April-May 1936, which was attended by 36 teachers (including 18 ladies). A Report of it was published in the issue of the *Journal* for October 1936. The Working Council feels specially indebted to the following lecturers, who did honorary work in the Summer School, and conveys to them its grateful thanks :—

(1) Mr. George Kuriyan,
(2) ,, K. Srinivasaraghavan,
(3) ,, B. M. Thirunaranan,
(4) ,, S. Balakrishna Ayyar,
(5) ,, S. Muthukrishna Ayyar,
(6) ,, P. Sridhara Rao,
(7) Miss E. D. Birdseye,
(8) Mr. M. S. Sabhesan,
(9) ,, R. Gopalan, and
(10) ,, N. Subrahmanyam.

The Sixth Geographical Conference of the Association was held at Salem on the 7th, 8th and 9th May 1936 under the Presidency of Mr. B. Rama Rao, Director of Mysore Geological Survey. The Proceedings of the Conference, along with the Presidential Address and the papers read, have been published in Vol. XI. No. 2 of the *Journal* for July 1936.

The Working Council has much pleasure in noting that the year has been one of varied and useful activity for the Association. It regrets, however, to find that there has been no improvement in the set-back in its strength and financial position during the year. The *Journal* has been getting more and more popular, and institutional membership steadily increasing. The several improvements and new features which have been recently introduced in it, though they have increased its cost of production, have been generally appreciated ; and the *Journal* is expected to improve the financial position of the Association in a short time.

In conclusion, the Working Council places on record its appreciation of the valuable services which are invaluable to the Association, rendered by its energetic Secretary.

(By order)

Gopalpuram, Cathedral P.O.
Madras, 12-4-1937.

N. SUBRAHMANYAM,
Secretary.

APPENDIX A.

THE MADRAS GEOGRAPHICAL ASSOCIATION, MADRAS

Balance Sheet as at 31st March 1937.

Liabilities.

	Rs. a. p.	Rs. a. p.
Advances :		
Subscriptions in advance—		
Ordinary Membership	15 0 0	
The Journal	32 0 0	
		47 0 0
Summer School Fees, 1937 ..		150 0 0
Liabilities for Expenses :		
Press bill due (approximate) ..		300 0 0
Capital Fund. ..		300 0 0
Research Fund. ..		6 0 0
Association Fund :		
Balance as per last Balance Sheet	477 2 11	
Less deficit	390 0 5	
		87 2 6
Total ..		890 2 6

Assets.

		Rs. a. p.
Furniture (at cost) ..		120 13 0
Cycle (at cost) ..		45 0 0
Books, maps, etc. ..		232 8 6
Subscriptions Due :		
Life Membership ..		75 0 0
Ordinary Membership for		
1935-36	10 0 0	
1936-37	96 0 0	
		106 0 0
The Journal :		
for 35-36	11 0 0	
for 36-37	129 0 0	
		140 0 0
Cash and other Balances :		
Balance on hand ..		56 0 0
Balance of Imprest A/c.		16 10 1
Balance of Indian Bank-S/B Account ..		98 2 11
Total ..		890 2 6

N. SUBRAHMANYAM. **Secretary.**

K. SUNDARESAN. **Treasurer.**

E. D. BIRDSEYE. **President.**

AUDITOR'S REPORT.

Verified the above Balance Sheet with the books of the Association and checked the Profit and Loss account for the year ending 31st March, 1937. These statements are correct according to the books maintained and the information furnished. Depreciation on furniture and Cycle is not charged. The deficit for the year has mainly resulted by the increase in Journal Expenses.

G. L. NARASIMHAM, R.A., G.R.A.
Registered Accountant.

Madras, 8th April 1937.

THE MADRAS GEOGRAPHICAL ASSOCIATION, MADRAS

Income and Expenditure Account for the year ending 31st March 1937.

Expenditure.

	Rs.	a.	p.
To Journal Expenses	1,405	5	9
,, Postage & Telegrams ..	192	3	3
,, Rent of office ..	180	0	0
,, Clerk & Peon ..	143	8	0
,, Maps, books, etc. ..	43	14	6
,, Stationery ..	16	1	3
,, Allowance to auditor ..	20	0	0
,, Cycle maintenance ..	2	7	0
,, Summer School Expenses ..	228	15	3
,, T. A. to Secretary to attend Conference	26	8	0
,, Telephone & Sundries	5	12	3
,, Meeting expenses ..	3	4	0
,, Branch expenses ..	10	0	0
,, Donation for Education Week ..	5	0	0
,, Typewriter repairs	5	8	0
Total ..	2,288	7	3
To Balance b/d ..	252	0	5
To Irrecoverable subscripitons written off:—			
Ordinary Membership ..	50	0	0
The Journal ..	88	0	0
Total ..	390	0	5

Income.

	Rs.	a.	p.
By Subscription received—and outstanding—			
Life Membership ..	400	0	0
Ordinary Membership ..	318	0	0
The Journal ..	943	0	0
,, Sale of copies of Journal ..	10	4	0
,, Postal charges recovered ..	1	2	0
,, Interest from Bank	4	0	10
,, Summer School Fees	360	0	0
,, Balance c/d. ..	252	0	5
Total ..	2,288	7	3
By deficit (carried to Balance Sheet) ..	390	0	5
Total ..	390	0	5

Note:—Dues to press are taken at Rs. 300 pending receipt of bill, and Branch expenses denote amount disbursed to branches for expenses.

K. SUNDARESAN.
Treasurer.

N. SUBRAHMANYAM.
Secretary.

E. D. BIRDSEYE.
President.

G. L. NARASIMHAM.
Auditor.

THE MADRAS GEOGRAPHICAL ASSOCIATION, MADRAS

Statement of Receipts and Disbursements for the year ending 31st March 1937.

Receipts.	Rs.	a.	p.
Opening Balances:			
Cash on hand ..	2	0	0
Balance of Imprest A/c.	72	0	1
Do. of Indian Bank S.B.	253	9	1
Receipts:			
Life Membership ..	325	0	0
Ordinary Membership ..	292	9	0
The Journal Subscription ..	911	0	0
Sale of copies of Journal ..	10	4	0
Postal charges recovered. ..	1	2	0
Interest from Bank ..	4	0	10
Loan from Secretary. ..	100	0	0
Summer School Fees '36.	370	0	0
Summer School Fees '37.	150	0	0
Total ..	2,491	9	0

Disbursements.	Rs.	a.	p.
Disbursements:			
Journal Expenses ..	1,327	10	6
Postage & Telegrams ..	192	3	3
Rent of Office ..	180	0	0
Clerk & Peon ..	143	8	0
Maps, books etc. ..	43	14	6
Stationery ..	16	1	3
Allowance to auditor ..	20	0	0
Conveyance & Cooly ..	1	6	9
Cycle maintenance ..	2	7	0
Refund of Summer School fee 1936 ..	10	0	0
Summer School Expenses 1936 ..	228	15	3
T. A. to Secretary to attend Conference ..	26	8	0
Telephone & Sundries.	4	5	6
Meeting expenses ..	3	4	0
Donation for Education Week ..	5	0	0
Branch Expenses ..	10	0	0
Typewriter repairs ..	5	8	0
Advance repaid to secretary ..	100	0	0
Closing Balances:			
Cash on hand ..	56	0	0
Balance of Imprest ..	16	10	1
Do. of Indian Bank S. B. Account ..	98	2	11
Total ..	2,491	9	0

K. SUNDARESAN,
Treasurer.

N. SUBRAHMANYAM,
Secretary.

THE
MADRAS GEOGRAPHICAL ASSOCIATION
RULES

1. The name of the Association shall be 'The Madras Geographical Association'.

Objects.

2. The objects of the Association shall be:—
   - (*A*) To promote geographical knowledge;
   - (*B*) To secure for geography its proper place in the High School, the University and its constituent and affiliated colleges;
   - (*C*) To help to improve the methods of teaching geography;
   - (*D*) To work for a school of geography being started;
   - (*E*) To promote studies about South India from various standpoints.

3. These objects shall be secured by:—
   - (*A*) Holding meetings and conferences, and publishing periodicals and occasional bulletins;
   - (*B*) Organizing geographical exhibitions and excursions;
   - (*C*) Helping in the preparation of geography books in the languages current in the Presidency;
   - (*D*) Forming a central library of geographical literature, and collecting maps, charts, plans, models, slides and instruments;
   - (*E*) Providing for circulation to members, of books, periodicals and other collections;
   - (*F*) And by such other ways as are deemed necessary to effectuate the objects of the Association.

Membership.

4. The membership of the Association shall be open to all those who are interested in the promotion of geographical knowledge or in the teaching of geography.

5. There shall be two classes of members, honorary and ordinary.

6. Honorary members are those who shall be so elected by the council by the majority thereof present at its meeting. They shall be exempt from liability to pay subscription, and shall have all the privileges of ordinary members, except voting.

7. A person shall become an ordinary member upon the proposal by a member, the seconding by another member and approval by the council by the majority thereof present at its meeting. He shall pay an annual subscription of rupees two, payable in one instalment or in *two* equal half-yearly instalments at his option.

8. Those who pay an amount of hundred rupees in two years become LIFE MEMBERS, and they shall be exempt from payment of any further subscriptions.

THE JOURNAL OF
The Madras Geographical Association,

The Journal is a Quarterly published every April, July October and January. It contains mainly original papers read before the Association; but, it will also include articles, notes, reviews, etc.,useful for the teacher of Geography.

The annual subscription is Rs. 4 for members (excluding the membership subscription of Rs. 2), and for non-members and institutions Rs. 8.

The Journal is a good medium of advertisement for Geographical publications, apparatuses and appliances.

Advertisement Rates.

Full page per insertion	..	Rs. 10
Half page „ „	..	„ 6
Quarter page „	..	„ 4

All correspondence to be addressed to the Secretary,

The Madras Geographical Association

Gopalapuram, Cathedral Post, Madras.

THE SOUTH INDIAN TEACHER

(Is the Teachers' Journal)

Do you get a Copy of it!

If not write at once,

With the Annual Subscription.

Rs. 3 0 0 only.

To the Hony. Secy. & Manager,
41, Singarachari Street,
TRIPLICANE, MADRAS.

The Journal of
The Madras Geographical Association

PUBLISHED QUARTERLY.

Volume 12. JULY, 1937. No. 2.

EDITED BY

N. Subrahmanyam, M.A., L.T., F.R.G.S.

12 NOV 1937

CONTENTS.

	PAGE
PROCEEDINGS OF THE 7TH GEOGRAPHICAL CONFERENCE ..	57
WELCOME ADDRESS.—By Mr. S. Ramalingaswami, B.A., B.L. ..	59
PRESIDENTIAL ADDRESS.—By Rao Saheb C. M. Ramachandra Chettiar, B.A., B.L., F.R.G.S. ..	64
ADDRESS.—By Prof. K. S. Vakil, M.ED. (LEEDS), M.R.S.T., F.R.G.S. .	78
THE HISTORICAL GEOGRAPHY OF THE CAUVERY DELTA WITH SPECIAL REFERENCE TO THE TANJORE DISTRICT.—By Mr. T. B. Renganatha Davey, B.A. ..	83
A STUDY OF THE PLACE-NAMES OF THE TANJORE DISTRICT I.—By Mr. S. Natesan, M.A., L.T. ..	95
A STUDY OF THE PLACE-NAMES OF TANJORE DISTRICT II.—By Rao Saheb C. M. Ramachandra Chettiar, B.A., B.L., F.R.G.S. ..	105
THE GEOGRAPHICAL SIGNIFICANCE OF PLACE-NAMES IN THE TANJORE DISTRICT III.— By Pandit N. V. Sastri, Siromani, M.R.A.S. ..	111
THE PHYSICAL GEOGRAPHY OF THE TANJORE DISTRICT.—By Mr. K. S. Chandrasekharan, M.A., L.T. ..	114
A NOTE ON THE GEOLOGY OF TANJORE DISTRICT.—By Mr. K. S. Chandrasekharan, M.A., L.T. ..	120
THE CLIMATE OF TANJORE DISTRICT.—By Mr. S. Muthukrishna Das, B.A. HONS. (LONDON), F.R.G.S. ..	122
NEWS AND NOTES ..	128
REVIEWS ..	132
BOOKS AND JOURNALS RECEIVED ..	135

THE MADRAS GEOGRAPHICAL ASSOCIATION,

Gopalapuram, Cathedral P.O., Madras.

THE MADRAS GEOGRAPHICAL ASSOCIATION, MADRAS.

THE WORKING COUNCIL

For 1937.

EX-OFFICIO MEMBERS

President.

Miss J. M. Gerrard, M.A.,
Principal, Lady Willingdon Training College, Madras.

Vice-Presidents

1. M.R.Ry. Rao Bahadur R. Krishna Rao Bhonsle, B.A.,
2. M.R.Ry. Rao Saheb C.M. Ramachandra Chettiar, B.A., B.L., F.R.G.S.,
   President, District Educational Council, Coimbatore.

Secretary

Mr. N. Subrahmanyam, M.A., L.T., F.R.G.S.,
Lecturer in Geography, Teachers' College, Saidapet.

Treasurer

Mr. K. Srinivasaraghavan, M.A., L.T., DIP. GEO.

OTHER MEMBERS

1. Mr. George Kuriyan, B.SC., (LOND.),
2. Mr. B. M. Thirunaranan, B.A., HONS. (LOND.),
3. Mr. P. G. Dowie, M.A., L.T., DIP. GEO.,
4. Miss Mary W. F. Waddington, B.A., HONS., (BRISTOL).

All communications and remittances should be addressed to—
The Secretary,
The Madras Geographical Association,
Gopalapuram, Cathedral Post, Madras.

12 NOV 1937

It has been decided to change the Association year and the Journal year so as to coincide with the calendar year from 1st January 1938. The current year will, therefore, consist of nine months only from 1st April 1937 to 31st December 1937. There will, however, be *four numbers of the Journal* for the year as in previous years, issued for April, July, October and December 1937, in Volume XII. The subscription for the current year will, consequently, remain the same as in previous years.

THE EDITOR.